geoWorld

The definitive magazine about GEOS

Issue #21

SPECIAL

Graphics Issue Part One:

geoPaint/geoPublish Connection

The Big Postscript Breakthrough

Comic Book Artist

Color Separation

STORM SYSTEMS DISK I

Now available: the disk of GEOS programs that you've always wanted! More than ten great programs to help you get more from your GEOS system, many 80 column compatible.

Included on the disk:

Font Monster: a radical new approach to creating GEOS fonts!
How would you like to create fonts using such graphic tools as: dot, line, box, circle, copy, cut, paste, mirroring, regional pattern fill, image inversion, bit image scaling and more! Sound familiar? It should. What I just described was a graphics editing utility that every owner of the GEOS system already has: geoPaint.
Font Monster will allow you to grab your font images directly from any geoPaint file through an on-screen window, no photo scraps involved. Modify existing fonts or create new fonts from 4 to 48 point. Individual characters may be up to 56 pixels in width! Flexible saves: fonts can be saved to any point size (GEOS 64/128, 40 column only).

CIRCE V2.0: a fantastic new version of F.G. Kostella's classic game of conquest on the planet CIRCE (GEOS 64/128, 40 column only)!

Wrong is Write V8.0: an updated 80 column compatible version of my universal text conversion utility. It allows you to easily convert between all versions of geoWrite 1.1 to 2.1. It will import and export PETASCII and True ASCII sequential text files into and out of geoWrite files. It will also change the font or style of an entire geoWrite document.

REU Zap II: preset an entire RAM 1571 to be reloaded by merely double-clicking a single file. All details of the RAMdisk are retained, including notepad page distribution and even disk name!

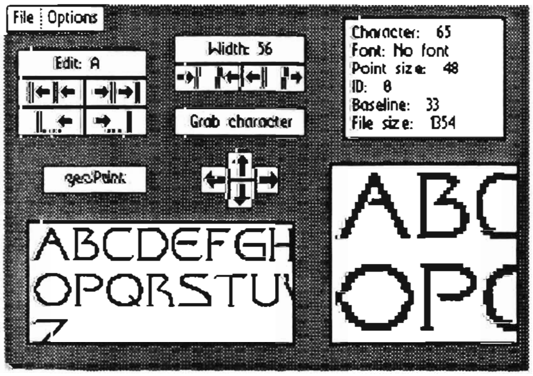
RePrint: print up to nine copies of a single document at one time (works best with geoPaint)!

Any Drive Boot: 'boot' GEOS from any of the normally supported disk drive types. Requires 17XX series RAM Expansion Unit.

Plus more programs and new fonts!

Storm Systems Disk I will be available July 15, 1989 for $20. Documentation for all programs supplied on disk in either DocWright II or geoWrite format.

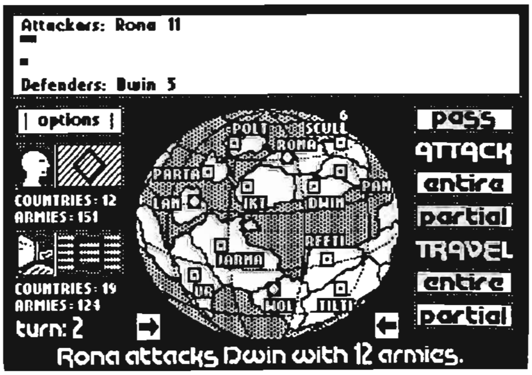
To order, send check or money order to:



Edit: A
Width: 56
Character: 65
Font: No font
Point size: 48
ID: 8
Baseline: 33
File size: 1354

Joseph Buckley
Storm Systems
464 Beale St.
W. Quincy, MA 02169

Taking the GEOS world by storm.



Attackers: Rona 11
Defenders: Dwin 5
COUNTRIES: 12
ARMIES: 151
COUNTRIES: 19
ARMIES: 124
turn: 2
Rona attacks Dwin with 12 armies.

GEOWORLD

The definitive magazine about GEOS

Issue Number
21

GEOWORLD is not a monthly publication. Please check the mailing label for when Your last issue will be sent.

Roger Ledbetter
Publisher

Susan Puhn-Lamb
Editor
3575 E. CO. 18th St.
Yuma, AZ 85365

GEOWORLD is published and printed entirely from the homes of the Editor and Publisher using GEOS, Commodore 128, geoPublish, geoPubLaser, geoTerm, modem and postscript laser printer.

Articles may be submitted in geoWrite with artwork in geoPaint or photo scrap on GEOS disk. Authors will receive GEOWORLD PD disk and $15/page for material published.

Subscription
(Mail order only)
12 issues $20
1 issue $2.50
Canada $30 - Overseas $50

GEOWORLD
38 Santa Ynez St.
Santa Barbara, CA
93103

United Kingdom Distributor:
Financial Systems Software Ltd.

Copyright 1989

Table of Contents

2 **GEOS Compatable** *James Stubbe*

3 **Alternative Desktop** *John F. Howard*

6 **GEOS Graphics** *Susan Puhn-Lamb*

8 **GEOS Gems** *Peter T. Hughes*

10 **Color Separation with geoPublish** *Roger E. Eller*

12 **GEOS Comic Book Artist** *Sean Huxter*

14 **Antigrav Toolkit Notebook** *Randy Winchester*

17 **Inside GEOS** *William Coleman*

21 **GEOS Report** *Mike Ross*

25 **A Guided Tour** *Marshall Kragen*

28 **Hardware Tip** *Jean F. Major*

28 **Multiple Copies with geoWrite** *Stephen L. Haffly*

The Cover

Color separation with GEOS, created by Roger E. Eller, Rt.11 4 Welcome View Dr., Greenville, SC 29611. Read Rogers article on page 10 and spruce up Your documents by printing multiple colors. You don't need a color printer, just change ribbons and overlay additional colors!

GEOS Compatible

Ram Expansion Unit Secrets: Part 2

By James Stubbe

The use of a Commodore 17xx Ram Expansion Unit as a RAMdisk greatly enhances the GEOS experience by minimizing disk access time. In this article, part 2 of a continuing series of REU based articles, we will consider how best to use the REU as a disk drive.

The REU's best attribute is the speed at which it allows you to run GEOS. The program is "faster" with an REU because it minimizes disk access time. With GEOS being dependent on virtual memory techniques, (using the disk drive as an extension of computer memory), the time spent accessing the disk for information can be quite significant. With an REU you can do more in a shorter amount of time. This is especially true if you keep both an Application and its data file in the REU.

For example, you can switch from geoPaint document to geoWrite document in less time than GEOS takes to load the deskTop from a physical disk drive (assuming both geoPaint, geoWrite and the data files are in the REU). The ability to quickly switch from one application to another really makes GEOS shine as an operating system.

As we know from our discussion on REU recovery hints last time, the data in the REU is held in RAM and not automatically backed up to the physical disk drive (i.e. if the computer crashes you may loose ALL the REU data-even with the use of recovery techniques). So you MUST make regular backups of the data file in the REU.

This may seem to be an inconvenience, but if you consider the disk accessing time saved and compare it to the time spent updating the REU data you will find REU updating to be much faster than running the data file from a physical disk drive (even a 1581). This is apparent with every major GEOS application I have ever used from scrolling in geoPaint, to page reformatting in geoWrite, and number crunching in geoCalc.

Especially number crunching in geoCalc! Remember to try the REU recovery tricks discussed last time if you fail to backup REU data before a GEOS system crash. The data may still be safe in the REU!

Application disks and data disks:

There are several ways to simplify the process of loading GEOS files into the REU RAMdisk, depending on the type and number of disk drives you own (1541,1571 or 1581), the REU you have (1764 or 1750) and your version of GEOS. Yet, no matter what system you have, if you have an REU you will want to use "application disks" and "data disks".

An application disk contains one or more major applications plus the required fonts, desk accessories, and minor applications needed to run the major applications: It contains no application data. A data disk contains only application data and not the application itself. Note that both application disks and data disks fall under the title of *work disk*.

The general methodology is as follows: The entire application disk is copied into a 1764 REU (configured as a 1541 RAMdisk) or into a 1750 REU (configured as either a 1541 or 1571 RAMdisk). Next, the application disk is closed, removed from the physical disk drive and replaced by the appropriate data disk, which is then opened. Finally, the desired data files are copied into the REU. With GEOS 64 v 1.3 or GEOS 128 v1.4, files MUST be copied one at a time into the REU or by using the desktop COPY option (but only if the RAMdisk and physical disk are of the same type). With GEOS 64 or GEOS 128 v2.0 group copy can be used instead.

With all necessary files in the REU, we are now ready to go to work with GEOS. And since both application and data files are in the REU, GEOS will operate at lightning fast speed! I recommend leaving the data disk in the external drive to facilitate in backing up the data files in the REU. Again, backups should be done at regular intervals.

HINT: Always keep a copy of the deskTop in the REU.This is a MUST

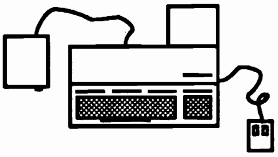
One advantage of using the application file/data file disk scheme is that no matter how many data files you may generate, there will usually be only ONE application disk for each of your main application areas (word processing, desktop publishing, database management, etc...) because the data files are stored on separate data disks. Not only will this decrease the number of disks in your GEOS library by reducing the number of redundant application files but will make it easier to find the application or utilities you want since they would be kept on a smaller number of disks.

Those of you who own a 1764 REU will find the application disk/data disk method VERY useful. In fact, with only 165k RAMdisk space available, it could be considered mandatory for some applications. For instance, geoPublish, is so large that adding a few fonts leaves almost no room for the application data.

On the the other hand, some data files may grow too large to fit on a disk that contains the application, even if the application takes up less than 50k. A large geoFile database is a good example. In these cases, it might be best to keep the data disk in the REU and run the application from the external drive. With geoCalc and even moderately large spreadsheets, this is a necessity.

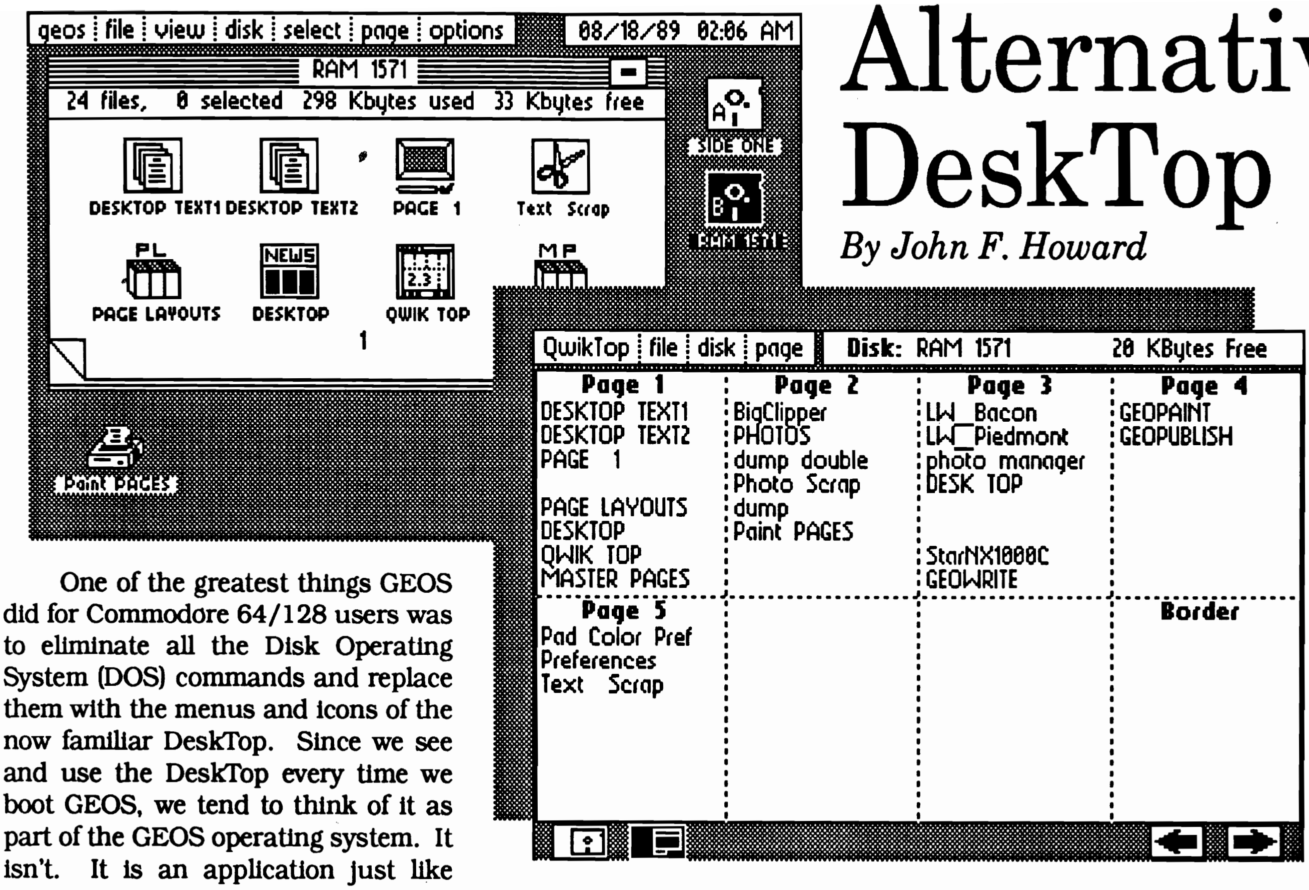
In the next issue, part 3 of *REU Secrets*, will continue our discussion of the REU by looking at the 1581 disk drive as a mass storage device including certain tricks will make your GEOS/ REU/1571/1581 fly at hypersonic speed. So until then....

Jim can be
reached on
Q-Link.
Send E-Mail
to STUBBE



Alternative DeskTop

By John F. Howard



24 files, 0 selected 298 Kbytes used 33 Kbytes free

Disk: RAM 1571 20 KBytes Free

Page 1	Page 2	Page 3	Page 4
DESKTOP TEXT1	BigClipper	LW_Bacon	GEOPAINT
DESKTOP TEXT2	PHOTOS	LW_Piedmont	GEOPUBLISH
PAGE 1	dump double	photo manager	
	Photo Scrap	DESK TOP	
PAGE LAYOUTS	dump		
DESKTOP	Paint PAGES		
QWIK TOP		StarNX1000C	
MASTER PAGES		GEOWRITE	
Page 5			**Border**
Pad Color Pref			
Preferences			
Text Scrap			

QwikTop 2.3 displays seven pages & border files at a time. Moving files between pages is simple & fast.

One of the greatest things GEOS did for Commodore 64/128 users was to eliminate all the Disk Operating System (DOS) commands and replace them with the menus and icons of the now familiar DeskTop. Since we see and use the DeskTop every time we boot GEOS, we tend to think of it as part of the GEOS operating system. It isn't. It is an application just like geoWrite or geoPaint. Its primary purpose is to provide a mechanism to handle programs and other types of files with a maximum of flexibility and a minimum of confusion.

With version 2.0 of the DeskTop (for use with GEOS2.0) we now have all the capabilities we could ever want. We have file moving, copying, deleting, and undeleting. We can change drives, disks, names and even the time of day -- all from the DeskTop. But, a price is paid for all these features. The biggest price is speed. The DeskTop takes up more than 30 Kbytes of disk space and all of it cannot be loaded into your 64 at one time. The DeskTop has to call many of its routines in from the disk drive before it can accomplish the task you have given it. Let's face it, unless you are running DeskTop from an REU it can get SLOW! The other drawback, especially for 1581 users, is that you can see only eight files at a time.

If you don't need all the "bells and whistles" of the DeskTop and just want to move between files quickly and easily then QwikTop is the file handling program for you. QwikTop's small size, less than 6Kbytes, lets it load and run in a fraction of the time it takes DeskTop to get up and running. QwikTop lets you see up to 64 files by showing you seven DeskTop pages at a time (plus the border files) on one QwikTop screen. From the Qwik Top screen you can load and run any GEOS application (GeoWrite, GeoPaint, etc.), any desk accessory (alarm clock, calculator, etc.) and any auto-execute file (Configure, etc.). You can also double click an application data file, such as a geoWrite document, and QwikTop automatically loads and runs the application just as in DeskTop. You can also move files around the disk just as you do with the DeskTop.

To replace the DeskTop with QwikTop, simply double click on the QwikTop file icon as you would any other GEOS application. You'll see the familiar command menu bar in the upper left hand corner of the screen, the disk name and number of Kbytes free in the upper right. You'll also see the first seven DeskTop pages and the border page file names on the QwikTop screen.

The command menu has four sub-menus: "QwikTop", "file", "disk", and "page". There are two items under the "QwikTop" sub-menu. Click on the "info" menu to see some information about QwikTop. Click on the "quit" menu to exit QwikTop and return to the DeskTop.

The "file" menu has one submenu: "delete". This deletes the currently highlighted file from the disk. Highlight a file by clicking once over its filename.

The "disk" menu allows you to swap disks in the currently open drive (unless it is a RAMdisk).

From the "page" menu you can insert or delete pages. When you delete a page, all the files on that page are deleted also. Any following pages are moved up. Pages are inserted after any current page of your choice. If you have 4 pages open and insert a page after page 2 then pages 3 & 4 are moved back becoming pages 4 & 5.

To see the next or previous seven DeskTop pages on the QwikTop screen, click on the left or right arrow icon at the bottom right corner of the screen. The border files are always displayed. Since GEOS limits us to 144 files on a disk (even on the 800 Kbyte 3 1/2" disks) there are a maximum of 18 DeskTop pages or three QwikTop screens.

The disk drive icons are at the lower left corner of the screen. QwikTop supports up to three drives and displays an icon appropriate to the drive type: 5 1/4", 3 1/2" or REU. The leftmost icon is drive A, then drives B and C. To open drive A or B just click on its icon. That icon, as the currently open drive, is highlighted. QwikTop lets you access a third drive (drive C) much like you do from DeskTop. When you click on the drive C icon, the pointer changes to a small box indicating that you have elected to swap drive C with either drive A or B. Move the pointer over the drive A or B icon and click to complete the swap. To abort the swap click again while the pointer is over drive C's icon.

To open a file from the QwikTop screen, just double click on its name. If it is an application, auto execute file, desk accessory, or application data file it will be loaded and run. If the file is not one of these types you will see a dialog box telling you that it can't be loaded from QwikTop. Once you've run an application or desk accessory from QwikTop you will be returned to QwikTop (not to DeskTop) when you quit that application or DA. To get back to DeskTop just click on the "quit" menu item which is under "QwikTop" in QwikTop's command menu.

Much quicker than DeskTop, you can move files between pages with ease. To move a file to another open page click once on the file name. You'll see that file name highlighted. Click again on that file name and the arrow will change to a rectangle with an arrow inside. Move this new pointer to where you want to put the file and click again. QwikTop will move the file from the old to the new location. You cannot move the file to an area that does not have a page number displayed. Add new pages using the "page" menu if you need to. To move a file from one QwikTop screen to another just move it to the border page, go to the desired screen, and move the file from the border to its new page.

If you want your system to go directly to QwikTop when you boot GEOS just put copies of QTAuto and QwikTop on your boot disk. You can still return to the DeskTop whenever you need to do a task you can't do with QwikTop.

That's all there is to it! Not all of the features of DeskTop but a quick and easy way to see and organize those tremendous GEOS files you've acquired from the geoWorld disks and from Q-Link!

--John F. Howard
Illini70 on Q-Link

How do the DeskTop, QwikTop, WormDesk or other file handling programs do their jobs? For starters all of them have to work within the framework of the Commodore Disk Operating Systems (DOS). The job of getting your computer to share information with the disk drive, or RAMdisk, is done by the GEOS kernal. The kernal is the heart of the GEOS operating system.

In all three Commodore drives, (and REUs configured as RAMdisks), data is handled in 256 byte chunks. Each chunk occupies one sector of a disk. These sectors are physically arranged in concentric rings, called tracks, on one or both sides of the disk. On the 1541 formatted disks there are 35 tracks with a total of 683 sectors. On the 1571 formatted disks there are 70 tracks with a total of 1,366 sectors. And, on the 1581 disks there are 80 tracks with a grand total of 3,200 sectors!

BUT, not all of this space is available to users. The DOS reserves one track on each disk for use as that disk's directory. The directory is much like a table of contents and index combined. On the 1541 and 1571 drives, the directory is on track 18 and on the 1581 it is on track 40. One, two or three sectors on the directory track are used to keep a record of which sectors on the disk are occupied and which are free. This is called the Block Allocation Map or BAM. The BAM is where GEOS gets its Kbytes free information. The remaining sectors on the directory track are used for individual file directory entries. Each entry uses 30 bytes which allows 8 entries per sector. You may notice that the 8 files on a DeskTop page correspond to the 8 entries in a directory sector. The limit of 18 pages of files (for a maximum of 144 files) in GEOS stems from the number of sectors on the directory track of a 1541 disk - 19 sectors on the directory track, less one for the BAM leaves 18 sectors for file entries. There is more room in the directory track of a 1581 disk to hold file entries but GEOS 2.0 doesn't let us use it.

Most of the time a file handler won't disturb the actual files on the disk. It manipulates the directory entries. Moving a file from one DeskTop page to another (or to the border) doesn't really move the file. It moves that file's entry in the directory from one sector to another. When we delete a file we're not actually deleting the file. The file handler just marks the directory entry as that of a deleted file and revises the BAM to show that the sectors once occupied by the file are now free for use. Thats why file retrieval programs, such as UnTrash, can do what they do -- until a file is duplicated, copied or saved. Then the DOS may overwrite that directory entry and the sectors that were used for that file.

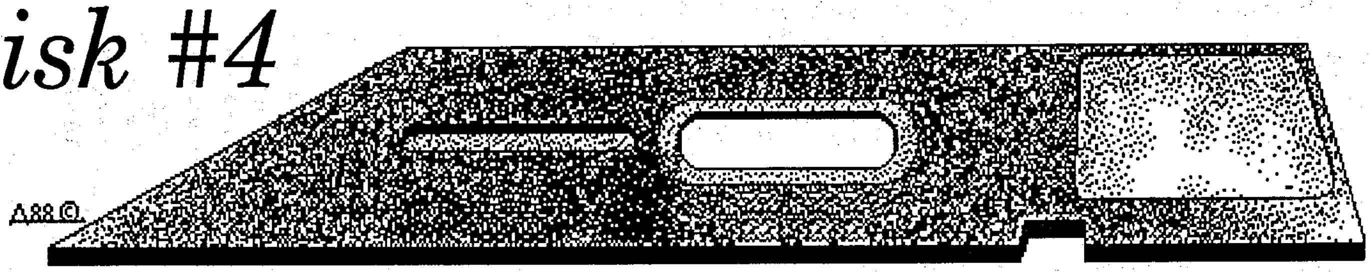
Once you've learned the ins and outs of Commodore DOS & the GEOS kernal you can devise your own file handling program to satisfy your specific needs! --JH

Editor's note:

An early version of Quiktop is included on GEOWORLD #3, and an upgrade on #4. The program keeps getting better and better. The ability to move files from page to page makes it a great disk organizer.

We will continue to put the upgrades on the GEOWORLD disks as long as John keeps improving his programs. I recommend a shareware donation to keep him working.

Announcing GEOWORLD Disk #4



We are now at the point where we will be putting out a GEOWORLD disk with every issue. The main reason is to provide a form of customer service. New programs and upgrades of previous favorites are becoming available at a very fast rate. There are so many good files we still have to assemble on disks, in addition to the new ones we obtain on a weekly basis.

We are also working out a new system to get your disks sent as soon as possible since we know how important some of these programs can be to the work you are doing with GEOS. You can still call (602) 344-3537 if you haven't received your order within a reasonable length of time.

We have had only a few problems with disks that were mailed out, never to be seen again (eaten by Post Office machinery?), so, if you have your cancelled check and no disk, let us know right away.

GEOWORLD Disk #4 is filled with a variety of programs and upgrades. Side one has programs for learning, such as *GeoMath* math tutor. *MusicBox* by Obbie Zendik is a first place prize winner in the BSW programming contest. It takes advantage of the C-64's sound capabilities. *Album Animator* by Dennis Seitz was designed as entertainment, but it is also a good way to learn the basics of animation.

Dump and *dump double* work with the Paint Drivers, as well as your printer. The disk has many input drivers for mice, Koala pads and light pens. Included is *MouseMate* to change input drivers from within an application.

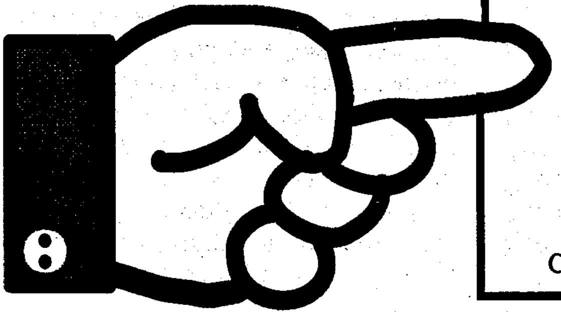
Other utilities featured are, *QwikTop* 2.1 upgrade (see pg. 3), *FFTB* (Fast Format That Baby!) 1541 disk formatter, and the best *Convert* version around by William Coleman. This 2.5 version will convert files in groups.

On side two is a major upgrade of Bill Prendergast's prize winning *LaserMatrix* printer driver customizing program. He has included a table listing printer parameters and escape codes for several printers. Bill is now working on an article for GEOWORLD to explain the workings of his program.

Another upgrade of a prize winner, is the popular *Text Print* by Terry Van Camp. He also has an offer for a major upgrade for serious word processing.

It came to our attention that many of you don't have the LaserWriter fonts that aren't included with geoPublish, so they are also on Disk #4. GEOWORLD #12 (March, 1988) has LaserWriter printouts of the fonts.

Lastly, is the patch program by Jim Collette that will patch geoLaser and geoPubLaser to save PostScript files to disk.



ORDER DISK #4 TODAY:

Disks #1, #2, and #3 are still available. Please indicate which numbers you want.
Send #10.00 check or money order with your request to:

GEOWORLD DISK #4
38 Santa Ynez Street
Santa Barbara, CA 93103

Canada & Mexico add .50 per disk. Foreign orders, add $1.50 per disk

GEOS Graphics: The geoPaint/geoPublish Connection

By Susan Puhn-Lamb

One of the most exciting features of the original GEOS software was a full-featured graphics program called *geoPaint*. Along with the ability to create quality, detailed graphics, came the means to combine them with text documents from the GEOS word processor, geoWrite. Since then, the cababilities and procedures for creating graphics with GEOS have just gotten better.

GeoPaint has become the graphics program of choice by many Commodore 64/128 computer users because it is both easy and versatile. The GEOS system is the best I've seen for incorporating type into graphics documents and graphics into text documents.

The success of geoPaint is evident from the large number of graphic conversion programs now available. One can use the best features of other graphics programs and then convert them to geoPaint for use of it's unique capabilities. Also, GEOS programmers have created so many utilities to be used with geoPaint documents - something no other graphics software package has available.

From the beginning, the major criticism of geoPaint has been the limited drawing window size and inability to scroll quickly around the page. As good as it was, everyone seemed to want a bigger and better geoPaint. It came, in a way, as part of geoPublish. New drawing tools were introduced, including the curvy spline and ability to draw in various line thicknesses. Quick scrolling around the page was made possible ,(zoom display) as well as the ability to work on the entire page at once (preview display).

Although the absence of pixel edit was a drawback, the release of the Paint Drivers allowed for geoPublish-created artwork to be converted to geoPaint for fine-tuning. All of the unique geoPublish tools, sizing (text & graphics), smoothing, overlay of different elements and tracing, could be used in a geoPaint document.

With large photo scrap clippers to transfer a geoPaint page to geoPublish and the Paint Drivers to convert it back, geoArtists can use the tools of each program on one finished document.

A terrific new geoPaint was introduced with GEOS 2.0. Sizing can now be done within the drawing window, along with smoothing, pattern choice and transparent overlays. This means a small Print Shop type graphic can be enlarged and then smoothed to eliminate a lot of touch-up. All those little Newsroom graphics can be combined and overlayed into a larger picture.

The paint brush, using patterns also has a whole new versatility. It is possible to overlay patterns opaquely and transparently. By experimenting with different patterns and in different modes, many unique effects can be created.

Now, elipses of all proportions are possible, as in geoPublish. So that perfect circles can still be drawn, *constrain* was added to the circle tools (see sidebar).

One of the most important new features of geoPaint 2.0, as far as I'm concerned, is keyboard cursor control of the drawing tools. This greatly increases accuracy of many drawing situations and allows precise placing of the edit box. The mouse or joystick just can't offer such control.

The GEOS environment now includes a great many utilities and desk accessories to make using the geoPaint/geoPublish system practical and efficient. First and foremost is the Photo Manager which can be accessed from within either program. Bitmap photo scraps of all sizes can be stored in photo albums for a unique filing system.

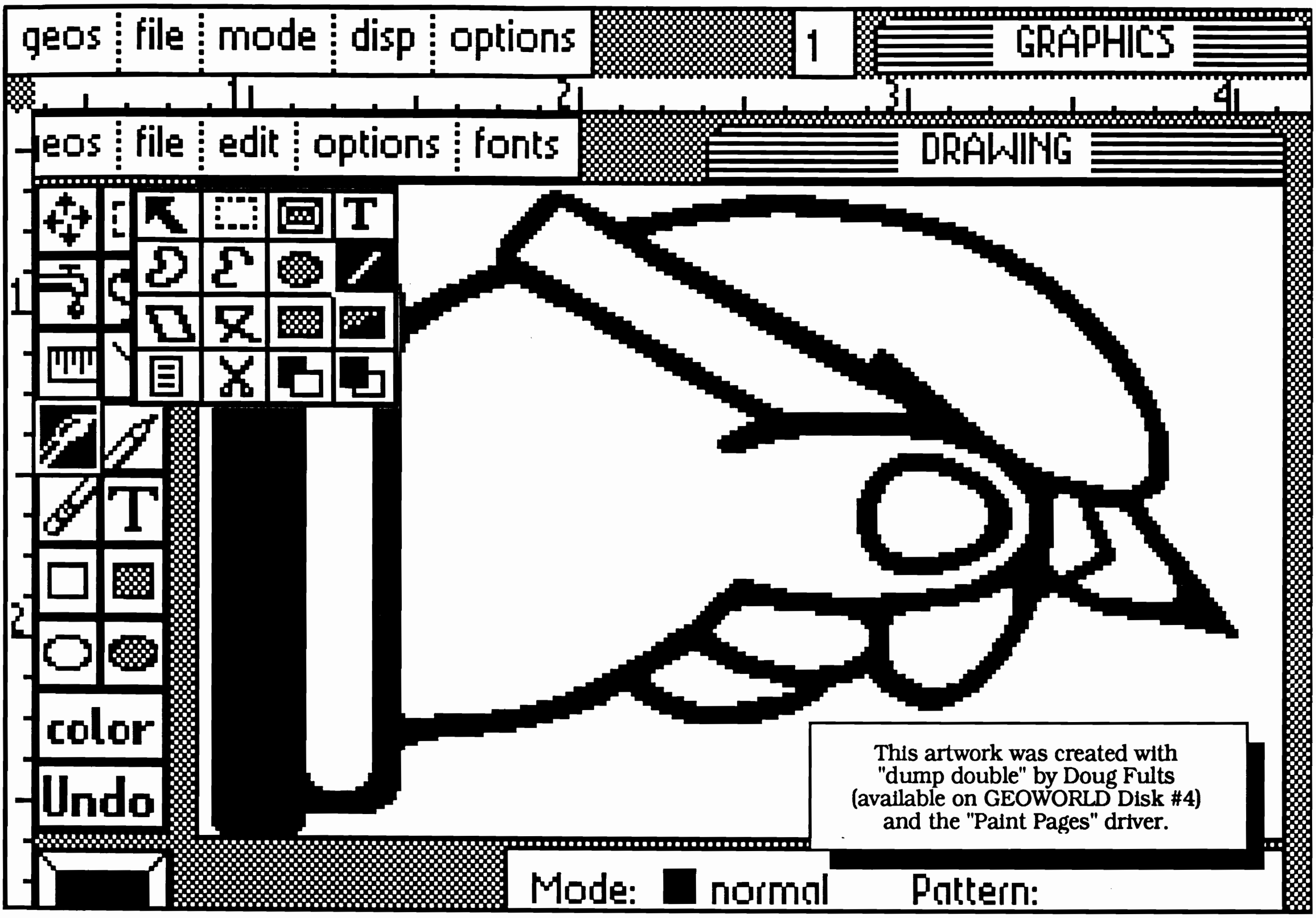
The upgraded GEOS 2.0 photo manager V2.1 lets you name each scrap and search through extensive album pages for the one you need. (See more about photo scraps in part two, next issue).

Many of the better graphics utilities have been created by Joe Buckley (aka Red Storm). They are available on the GEOWORLD disks, The two RUN Power Pak disks, and his own Storm System disks.

Besides being a geoPaint viewer, Joe's PaintView II lets you turn a full-screen portion of a geoPaint doocument into Doodle format, There are other graphics conversion programs from Joe (Graphic Storm and Import Runner), that are so easy to operate. His Thumbnail gives you a reduction of geoPaint pages for another way of organizing your files.

One of his latest programs, on the Storm Systems disk is Font-Monster, which lets you utilize all the geoPaint tools to design fonts. Rather than a font editor, this monster of a program grabs a piece of geoPaint page and puts it in a font character space. Not only can you grab alphabets you've drawn, but also parts of borders, patterns and little drawings.

All of the different programmers are making GEOS a bigger and better program than I ever imagined.



This artwork was created with
"dump double" by Doug Fults
(available on GEOWORLD Disk #4)
and the "Paint Pages" driver.

Even with all the new features of geoPaint, I still find that using the graphics tools in geoPublish adds so much more versatility to this excellent "graphics" program. These tools have attributes to select patterns, line thickness, opaque or transparent and smoothing. In creating my clip art, I find the two programs inseparable.

Although I am referring to bit map graphics here, the geoPublish tools can also be used to create object-oriented art (for printing with laser printers) and will be covered in part two of the GEOS graphics story.

If you're seriously interested in GEOS graphics, you should try geoPublish with the old standby geoPaint, even if you never intend to publish a newsletter, comic book, magazine or other desktop publishing project it's so good for.

Constrain: What Does It Mean?

My little dictionery says, "to compel, oblige, confine or restrain". What it means in geoPaint is that you are "obliged" to draw something a certain way when the constrain box is selected.

This attribute was a way of combining the ellipse and circle into one tool. Selecting constrain tells the ellipse/circle tool to make an equal, round circle -- at least as round as can be made with pixels. Otherwise, the tool may draw an ellipse, or oval.

The rectangle and square also combine into one tool by having the constrain option. Constrain turned on with the hollow or filled rectangle will only create a perfect square.

When constrain is selected with the line tool, you are "compelled" to draw perfectly straight horizontal, verticle or true diagonal (45 degrees) lines. The ruler is affected the same as the line. When constructing geometric art, constrain can make the work much quicker, especially with the mouse, which has trouble maintaining straight lines.

Once you've selected the constrain attribute in one tool, it is active with the others that use it and must be de-selected when you're through with it.

--Susan Lamb

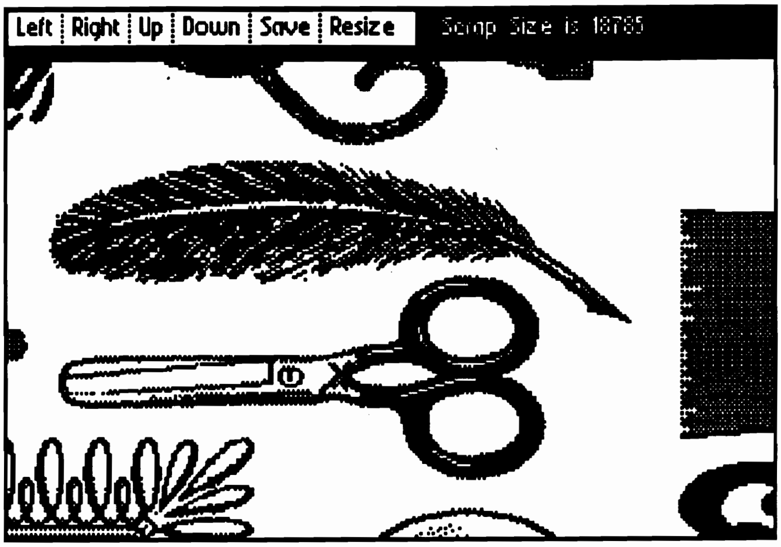
GEOS GEMS - Invaluable Utilities for GEOS

By Peter T. Hughes

Photo Utilities

BigClipper

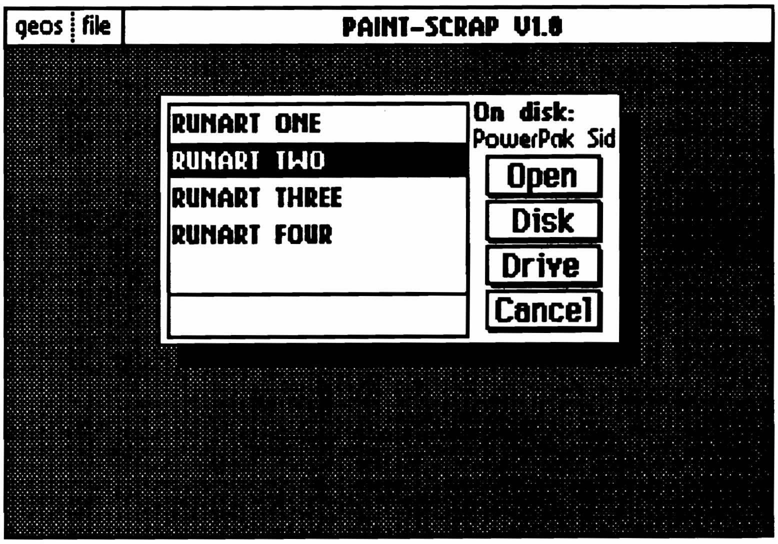
Big Clipper by Nick Vrtis will allow you to make almost any size Photo Scrap. The first version made Photo Scraps up to 8K in size. Version three will allow 20K Photo Scraps; that is almost a full page Photo Scrap. With line-drawing geoPaint documents you can create very large photo scraps. With very detailed and shaded geoPaint documents you will have to create smaller Photo Scraps. This program is very simple to use. You set the co-ordinates in pixels of the top and bottom scanlines and the left and right sides. After creating the Photo Scrap you can view it by scrolling it. Large Photo Scraps are mostly used for geoPublish because you can paste and manipulate large Photo Scraps on the Preview page. Reduced Photo Scraps printed on a laser printer look very fine. Wide Photo Scraps with normal height can be used in geoWrite for full page width letterheads.


Left
Right
Up
Down
Save
Resize

Scrap Size is 18765

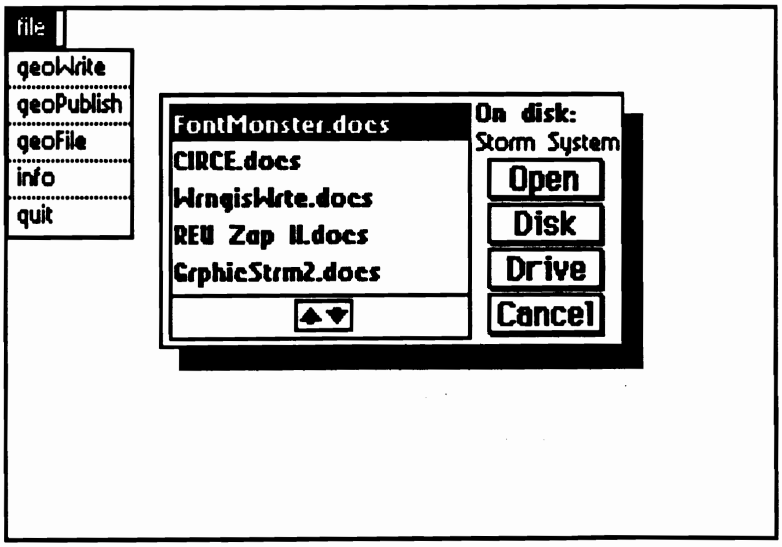
Paint-Scrap

Paint-Scrap by Dennis Seitz is a utility that will allow you to convert an entire geoPaint file to a Photo Scrap, so that it can be pasted into a geoPublish document. The maximum size allowed for the geoPaint file is about 28K. If the file is too large or complex the conversion will be stopped. By using the Paint Drivers you can convert a geoPublish document to geoPaint; and by using Paint-Scrap you can convert the geoPaint document to a Photo Scrap and paste the full scrap into a geoPublish document. This way you can use the full page editing features of geoPublish such as line, box, ellipse, and spline, and then use the geoPaint features such as pixel edit and pattern fills to put the finishing touches on your picture. You can convert the picture back and forth between the two formats as many times as you wish.


geos
file
PAINT-SCRAP V1.0
RUNART ONE
RUNART TWO
RUNART THREE
RUNART FOUR
On disk:
PowerPak Sid
Open
Disk
Drive
Cancel

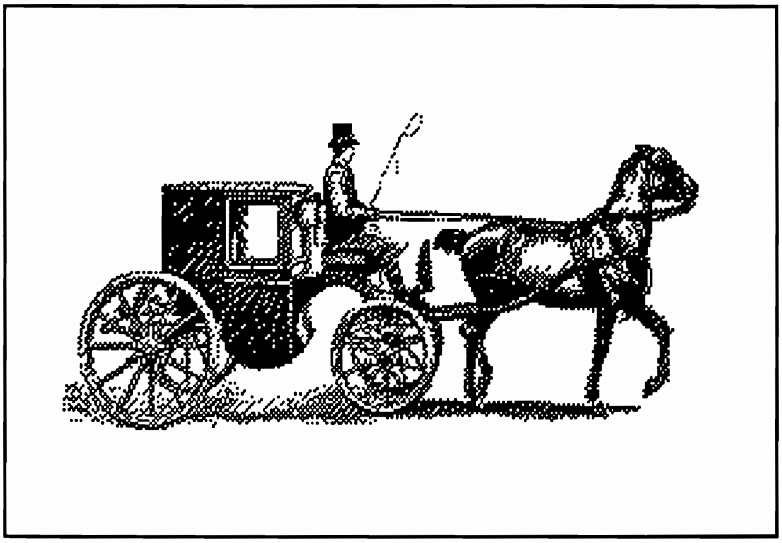
Retriever

Retriever by Ed Flinn is a very handy utility for copying Photo Scraps from documents and putting them all back into a Photo Album so they can be edited and pasted into other documents. This is great for documents where you lost the original Photo Scraps that were in the Photo Album or you receive a document from someone and want to use the Photo Scraps that were in it. Version two will retrieve Photo Scraps from geoWrite, geoFile, and geoPublish documents.


file
geoWrite
geoPublish
geoFile
info
quit
FontMonster.docs
CIRCE.docs
WrngisWrte.docs
REU Zap II.docs
GrphicStrm2.docs
On disk:
Storm System
Open
Disk
Drive
Cancel

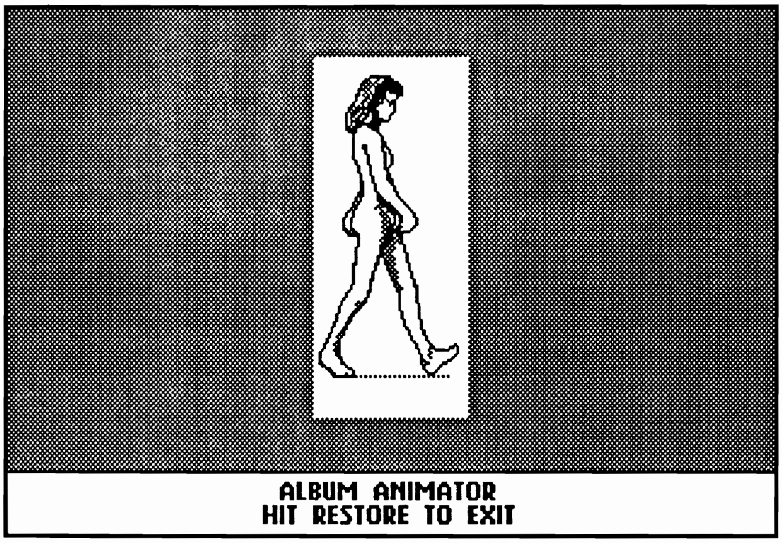
ScraPeek

ScraPeek by Ed Flinn will let you view pages in Photo Albums and a Photo Scrap that is on a disk. Version 3.4 will work with GEOS 64 2.0 and GEOS 128 2.0 in 40 and 80 column modes. Eight inch wide Photo Scraps can be viewed in 80 columns. Also this version will work with old version 1.3 Photo Albums and new version 2.1 Photo Albums. The full height and width of a Photo Scrap is displayed; no scrolling around as you do in the Photo Manager. ScraPeek will display how many pages are in a Photo Album and what page you just viewed. You can flip to the next or previous page or type in the page number and immediately go to that page. This program is good for looking at Photo Albums to see what graphic images are in them without having the Photo Manager on the same disk.



AlbumAnimator

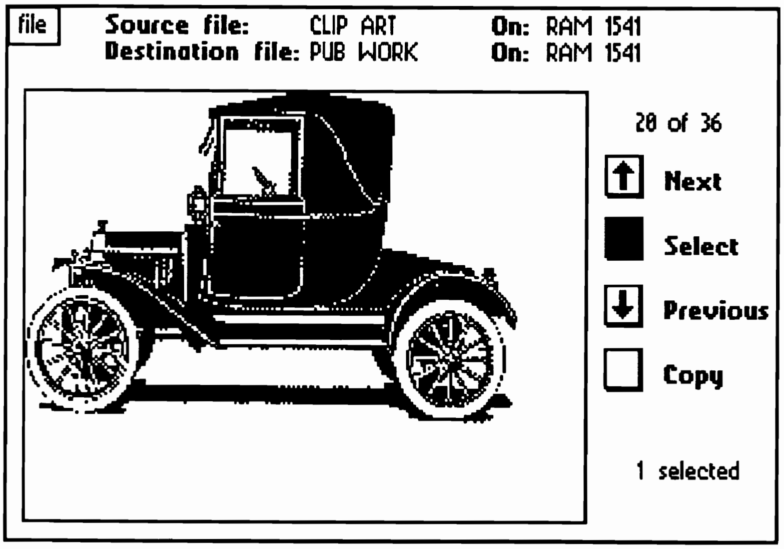
AlbumAnimator by Dennis Seitz is an application that will page flip through Photo Albums. If the Photo Scraps in the Photo Album are repeated images that are modified slightly, motion can be simulated. This program will load the Photo Album into memory up to a limit. You can set the animation rate from 1 to 255; where 1 is the fastest and 255 the slowest. The animation loops continuously until stopped by pressing the RESTORE key. If you set the rate to a slow value you can use this program to scan through a Photo Album to see what is in it.



ALBUM ANIMATOR
HIT RESTORE TO EXIT

Photo Mover

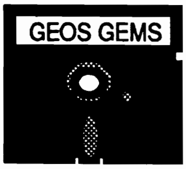
Photo Mover v1.0 by Rick Coleman is a utility to help organize your Photo Albums. It moves Scraps between v1.0 Photo Albums. Photo Mover allows you to open a Photo Album, then go through it displaying the Photo Scraps and selecting the Scraps that you wish to move to another Album. It will then move the selected Scraps in the order that they appear in the original Album. This is a copy operation, so the original Album remains intact. Use it to organize your albums by quickly grabbing related Scraps from many Albums and putting them into one Album. Use it for special projects with geoPaint and geoPublish. Use it to split large v1.0 Photo Albums into smaller ones for conversion to v2.1 Albums. A new Photo Mover v2.5 that works with v2.1 Photo Albums is available. Send $10 to Rick Coleman, PO Box 44, Sheridan, WY 82801.



Source file: CLIP ART **On:** RAM 1541
Destination file: PUB WORK **On:** RAM 1541

20 of 36

1 selected



WANTED: GEOS GEMS

Any programmers or users of GEOS who find other useful programs for GEOS, please let me know and send them on disk to me. I am always looking for new utilities. My address is: Peter T. Hughes 151 Randolph St., Canton, MA 02021. With your permission they may appear in a future GEOS GEMS column in GEOWORLD.

Color Separation with geoPublish

How to be Impressive with a Commodore Computer

By Roger E. Eller

I am a freelance commercial artist, and I try my best to provide my customers with high quality camera-ready art in all cases. I use GEOS and geoPublish regularly in my work. We are all aware that GEOS tries to make the Commodore 64 or 128 act like the more expensive Apple Macintosh.

I want to present some ideas in this article that will give you a sense of pride in the Commodore's capabilities, and in your own. I have seen some pretty impressive artwork produced on the Macintosh where I work. We have the ability to be just as impressive with a little thought and planning. This little "GAME MACHINE", as it is commonly referred to, can PAY for itself; mine did . . . SEVERAL TIMES.

Why be impressive?

My reason is simply because I enjoy my work, and I thank God for that. Many Macintosh and IBM users seem to have the attitude that we who own Commodores do not pose a threat to them in today's competitive market. I pose this threat, and propose that you do likewise. We owe it to ourselves to clear our Commodore computers of this name-calling misconception. We can still enjoy our games though, which by the way are already dominant in selection and affordability.

How to be impressive...

First of all, a first impression is usually in accordance with the appearance of the object in question. Laser printing is far better than dot-matrix, and laser image-setting devices like the Linotype linotronic 300 are the best output devices available. Therefore, linotronic output is IMPRESSIVE. Through education, experience, and playing, I have been exposed to some rather sophisticated techniques in the graphic arts industry.

Many of these techniques can be applied as you use geoPublish and geoPaint. If you presently work, or have worked in a pre-press graphic environment, you know that there are many steps that can be alleviated, and much costly film and other materials saved by applying these techniques within GEOS.

One of these is COLOR TRAP, where two colors overlap to give an appearance that they butt together. COLOR TRAP is common when dark colors and light colors meet. A simple example of this would be yellow type on a dark red background. A simple separation can be achieved with geoPublish by first, on page 1, creating a solid background and placing white type on top of it.. Then, on page 2, creating another solid area, slightly larger than the area the white type occupies, and positioning it precisely where the type was placed on page 1. When these pages are laser printed, page 1 should be labeled "red", and page 2 labeled "yellow". The print shop you take this to will make a plate of each page, and yellow will run on the press first because of its light, semi-transparent nature. This is not always the case, but can be considered a standard practice.

Steps to electronic design and color separation:

In a more complex design, I would recommend the following procedure for electronic separation of colors. Start with a new geoPublish file and create your design as you normally would for a single color job. Use careful judgment in planning your design. When finished, exit to the desktop and select *file* from the command bar, then *duplicate* from its sub-menu. Repeat this for each color you intend to have printed, and label each duplicate file as to the color it will be.

Now you're ready for the separation. If your design does not involve COLOR TRAP (colors touching each other), separation is as simple as opening your duplicate files, and deleting all objects, photo-scraps, text, etc. which do not print in that particular color. Do not change the position of any elements of the design after this stage. All positioning should be perfect within the master file before separation. Rather than having to duplicate the file, I hope BSW will offer a duplicate-page command in a future geoPublish upgrade. This would allow a 15 color separation with the master page all in a single file.

Bitmap scaling and smoothing:

Photo-scraps are mapped pixel by pixel, which is why the jagged edges remain, even when laser-printed. For the sake of quality, a good rule is NEVER ENLARGE a bitmap graphic, smoothed or not. I have found that this kind of graphic does best if you create the image at least twice the size you need, clip a scrap, and import it to geoPublish scaled and smoothed. There are two user written applications on-line Q-Link that are VERY helpful in this matter: BigClipper, by Nick Vrtis, and Paint-Scrap, by Dennis N. Seitz. BigClipper cuts user-defined X/Y coordinate scraps larger than the drawing window. Paint-Scrap converts an entire geoPaint page to a photo scrap. A logo scanned in at page size, and reduced and smoothed to about two inches high would look great. The drawback is time. Postscript, the page description language, is a series of commands for the laser printer to follow. Scaling and smoothing 72 x 80 dpi graphics to 300 x 300 dpi graphics requires a lot of work from the LaserWriter. I have had pages take three hours to print. Consider this if you use Laser Direct for printing. That printing overtime sur-charge can really add up.

Color Trap with Object-Oriented Graphics:

The great thing about object-oriented graphics is the fact that modification of line thickness is as simple as selecting the object to be modified, clicking on the attributes box, and clicking the up/down arrows until the desired thickness is achieved. In most cases, clicking once on the up arrow will be sufficient; I wouldn't click more than twice though. Imagine a circle printed in red on a black background. For this separation, your master file will contain a solid black background with a white circle in the foreground. The attributes of the circle should be white with no line thickness.

Duplicate the file twice, and label them BLACK and RED. The BLACK file will need no modification because the shape of the finished RED is formed by the BLACK. Now open the RED file and delete the black background. Select the circle, and click on the attributes box. Click on the up arrow once or twice to make the overlap line or TRAP line, and change its FILL pattern to solid BLACK. All artwork is done in black and white regardless of the color of ink used for the final printing.

This procedure is the same for all object-oriented graphics: circles, lines boxes, splines, etc. Another upgrade suggestion could allow attribute changes of a group select, so all the TRAP lines in a group could be increased equally. If you have a rather complicated illustration made up entirely of object-oriented graphics, you will have to individually select all the objects (that make the outline where TRAP is needed) and increase the line thickness.

Note that you can not fill all objects solid as you can elipses and rectangles. I have found it easier and more reliable to just make the TRAP *line* on this type of illustration, and fill it in solid with a black Sharpie pen after laser printing.

Or, you can use the Paint PAGES printer driver, print to a paint file, and edit the illustration by filling it solid. Erase the surrounding area, and clip a photo-scrap to take back to geoPublish. Select *centered in region* with no smoothing, and a screen pattern consistent with the outline of the illustration. Note that the object-oriented line will make the shape if a thicker line is selected, and the scrap is only used to fill the area inside.

Cross-Hairs, Registration Bullets, and Pin Register:

When tight, critical register is necessary for printing a job that involves COLOR TRAP, I suggest that you use either cross-hairs, registration bullets, or a punch pin register system. Cross-hairs and bullets are very similar, and can be easily produced in geoPaint. If cross-hairs are used, *four* of them are necessary. They should be placed outside of the printing area at the top center, bottom center, and left/right centers. They look like tiny plus (+) marks.

The best cross-hairs can be made by typing a (+) using the lwCAL font, and positioning them in page preview mode with the CRSR keys. Set the attributes to *plain* text, *centered.* Registration bullets look like the bottom of a bullet. You can make them in geoPaint by drawing a small circle about 1/4" X 1/4", and draw a horizontal and vertical line through the center. They can be kept in a photo album for easy importing to geoPublish.

When you need to utilize the full area of the page, the punch pin system works best. You can purchase the pins at many graphic arts suppliers.

The way this system works is like this:

1 - All 8.5" X 11" laserprinted sheets are in register with each other when jogged even to two sides.

2 - If only two or three colors/ pages, punch one side of all at the same time with a standard three-hole notebook paper punch.

3 - Tape the register pins to a piece of white mounting board larger than 8.5" X 11".

4 - Draw either cross-hairs or bullets directly onto the mounting board, (outside the printing area) using a T-square and triangle for squareness.

5 - Have the printshop place each sheet of paper on pins individually when making plate negatives (this allows all colors to use the same register marks so no positioning errors can result). This is a bit technical, but we want the finished piece to be correct, Right?

About the cover...

Here's what I did. First, I picked up a real pencil and a real piece of paper, and drew some real rough sketches. I kept in mind the limitations of the computer and the software and myself. I decided that the cover should be definitive of the the content of the magazine, so my focal point was on images that represented commodore GEOS users all over the geoWorld. I took my roughs with me to work, and asked for constructive criticism. You should never be the sole judge of your work.

Special thanks for design input goes to my friends & co-workers: Roddy Rodgers, and Beverly Rodgers. Thanks to the editor and publisher of geoWorld for continuing to produce the only exclusive GEOS oriented magazine, and for allowing me to be a part of it all.

--Roger Eller

NEXT MONTH IN GEOWORLD

The above article explains one way of doing color separation with GEOS. In this method, each color is printed with ink of that color. In part two of our graphics series, we'll show another kind of color separation: full color graphic art printed with process colors.

If you have a technique for color separation with GEOS, let us know how you do it. Remember, this is not pictures printed with a color printer, but a technique for creating black and white "line art" used to produce color printing plates.

Also featured will be information about the many new ways of manipulating photo scraps and geoPaint artwork.

Other subjects covered will be, sizing graphics and object-oriented art with geoPublish.

--Editor

Sean Huxter: GEOS Comic Book Artist

My name is Sean Huxter and I have owned a Commodore 64 since 1982-83. I now own a 128. I had a very strange and interesting way of choosing which computer to buy. I decided that if I could program a game that looked exactly like Q*Bert in BASIC on a computer, then I'd buy it. The only one that could do the job was the Commodore 64. Sprites made it possible.

With my computer, I bought "SUSPENDED" by INFOCOM. I was hooked on adventure games from the beginning, but I was equally hooked on the Koala Pad when I first got my grubbies on one. Imediately, I began to draw using the 64. I entered University in 1984, and found that near exam times, I became extremely proficient with the Koala Pad. Work avoidance... GREAT INSPIRATION!

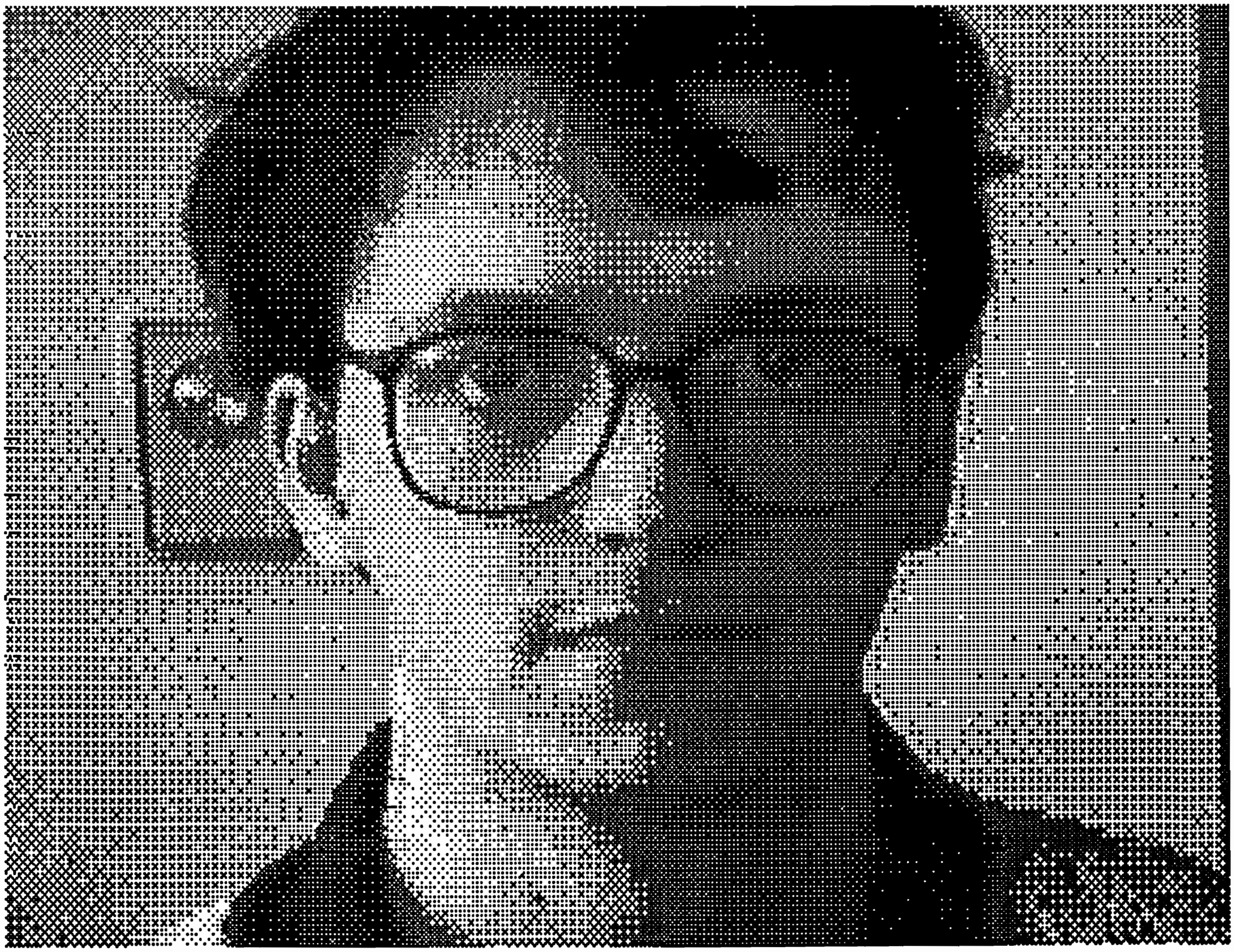
From 1986 to 1988 I did very little work on computer graphics, spending more time on my studies in Computer Science at Memorial University of Newfoundland. When I saw the ad for Berkeley's DESKTOP PUBLISHING CONTEST, I came up with an idea I was certain would win. While I was home for break in the early Spring of 1988, I wrote a comic book. First, I wrote it on paper in thumbnail size, sketching the gist of a story I came up with that day. I realized that I just HAD to do the comic with geoPaint and win that contest. Well, the story was computer related, so I thought "what better way to get my story across than to use a computer?" I remembered an article I had seen in 1984 about a comic drawn on the MacIntosh called "SHATTER". I thought that if they could do it, I could.

I did. I entered the comic in Berkeley's contest. It won first prize in the Open Design category, Dot Matrix division.

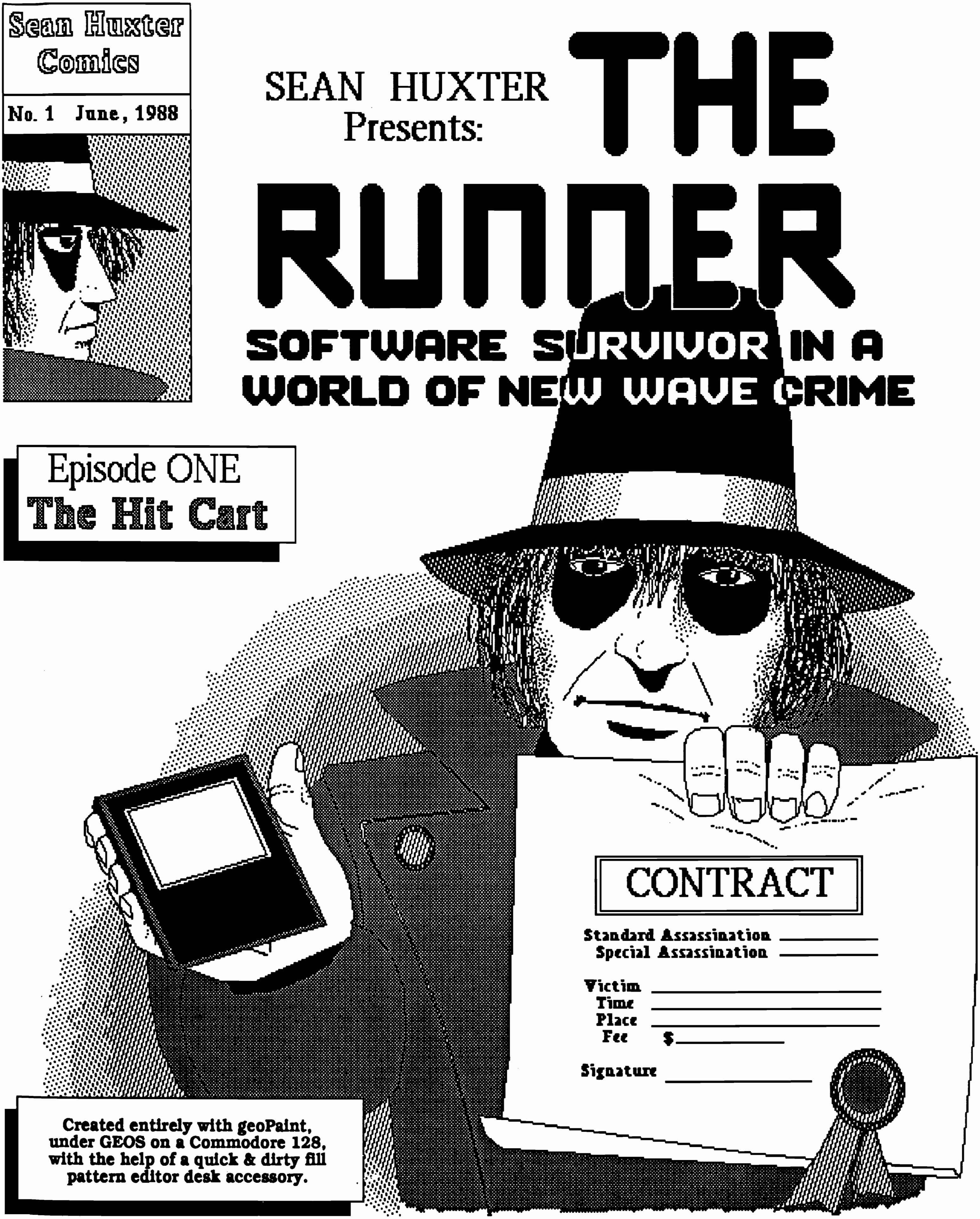
In April of 1989, Peter and Paul Hughes called me up to get me to send my entry and any other graphics to them for uploading to Q-Link. I was thrilled. I wrote a second episode of my comic book to include with the stuff I sent to Peter and Paul. There will be more...

Since then, I have graduated from University with a Bachelor of Arts in Computer Science with an English Minor, and have started a job in computer generated slide production.

I am extremely grateful for everything the Hughes Bros. have done for me, and I want to thank them. If anyone has any comments about any of my graphics, (good or bad) please feel free to write me.

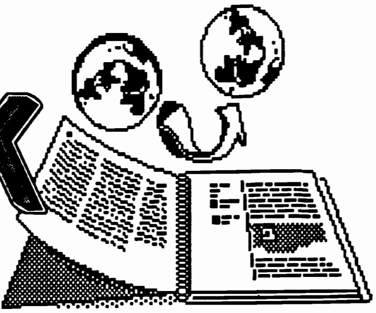


Write to: Sean Huxter -- P.O. Box 366 -- Springdale, NF -- Canada, A0


Sean Huxter Comics
No. 1 June, 1988
SEAN HUXTER Presents:
THE RUNNER
SOFTWARE SURVIVOR IN A WORLD OF NEW WAVE CRIME
Episode ONE
The Hit Cart
CONTRACT
Standard Assassination
Special Assassination
Victim
Time
Place
Fee $
Signature
Created entirely with geoPaint, under GEOS on a Commodore 128, with the help of a quick & dirty fill pattern editor desk accessory.

Here is the cover of Sean Huxter's prize-winning Desktop Publishing Contest entry. In the next issue of GEOWORLD, we will include the first six pages of his comic book, followed by six more in issue #23.

Antigrav Toolkit Notebook



The Big PostScript Breakthrough

Most of the questions I get asked about this column have something to do with PostScript: how GEOS produces PostScript, how to save PostScript files, and how to print PostScript files on a laser printer. One frequently asked question is, "When is someone going to make a version of **geoLaser** that prints to a disk file?"

Up until a couple of weeks ago, I would laser print my GEOS documents by having **geoPublaser** send its PostScript output over a modem to another computer. Wonderful, but admittedly, this is a klunky process. It requires a second computer and a modem that won't hang up if you bail out of a terminal program to run **geoPublaser**. You'll need both computers in the same room, or you'll have to recruit someone with a computer and modem to receive your file. These complications make the question of a PostScript to disk program even more urgent.

Fortunately, questions like this don't go unanswered for long. Jim Collette is a talented geoprogrammer, a winner in BSW's programming contest with his **Font Editor**. Prompted by some talk on QLink, he turned his attention to **geoLaser/Publaser**.

Jim wanted to save PostScript files to disk too. He tore into **geoLaser** and **geoPublaser**, changed some bytes here and there, and now they will send their output to a file.

Jim put these changes into a GEOS application, **PS.Patch**. **PS.Patch** can alter your copies of **geoLaser** and **geoPublaser** to make them produce PostScript files on a disk.

PS.Patch is simple to use. Start with a blank disk and copy **geoLaser**, **geoPublaser**, and **PS.Patch** to it. Double click on **PS.Patch** and select **geoLaser** or **Publaser** from the *patch* menu, then select either *PS on Drive 8* or *PS on Drive 9*. **geoLaser/Publaser** will always make PostScript files on the drive you select when you patch them. It's a good idea to rename the patched copies of **geoLaser/Publaser** so you won't confuse them with the originals.

The new versions of **geoLaser/Publaser** work pretty much the same as the old versions. To use the new **geoLaser/Publaser**, copy it to a drive along with the files to print and any fonts they use. The PostScript files will be written to the drive selected during patching. Put a blank disk in that drive. Double click on the **geoLaser/Publaser** icon, select 9600 baud, then select a file to print. You'll then see choices for scaling and multiple copies. Click on the boxes you want, then click *OK*. The disk in the drive should start spinning. When the file selection menu reappears and the disk drive stops, you're finished. (If you use a RAM drive it'll be over before you know it!) Check the disk directory. Your PostScript file will be a SEQuential file named "PS." followed by the name of the file you printed.

Caution: there are several incompatible versions of **geoPublish** and **geoPublaser**. My first attempt at patching a **Publaser** dated 11/19/87 ended with badly botched results. A report from one user is that the **Publaser** dated 3/10/88 is entirely useless. For this article, I'm using a **Publish** dated 10/4/88 along with a special release of **Publaser** that originally had a date of 1986! To top things off, all these versions of **Publish** and **Publaser** are V 1.0! Anyway, to distinguish the supposedly good **Publaser,** look for the words *Only for use w/Pub files created w/vers. 10/88 or later (our v. 1.2)* in the info box. Wouldn't it be nice if some kind soul at BSW took the time to clear this up?

A pointer: avoid bitmapped fonts in your laser printed documents. Try to stick with the Laser Writer fonts, such as LW_Roma. Documents with bitmapped fonts are converted to PostScript as bitmaps. These bitmaps can get pretty big. On the other hand, text written with LW fonts is converted to PostScript as text. Not only will the files be smaller, but LW fonts look much sharper.

This pointer also applies for pictures pasted into **geoWrite** and **geoPublish** documents. The more pictures you use, the longer it will take to generate a PostScript file, and the larger that file will be.

What's It Good For?

For one thing, if you know of a printing company that

Antigrav Toolkit

Make PostScript files from GEOS documents with PS.Patch and geoLaser or geoPublaser.

does laser printing and can read Commodore disks, you're all set. All you have to do is put your PostScript files on a disk and hand it over.

Unfortunately, most printing companies don't use Commodores, but many do use IBM gear. If you have a Commodore 128 with a 1571 disk drive, you can use the public domain **Cross Link** to copy PostScript files to an IBM disk. If you're going to be doing much file copying to IBM disks, I recommend **The Big Blue Reader**.

Telecommunications is another possibility for getting PostScript files to a printer. Check with print shops to see if they offer a modem service. If they do, use a terminal program to upload files to them.

Printing PostScript Files

If you're using an Apple LaserWriter, you'll need to connect it to a computer with an RS-232 cable. If you're hooking up a Commodore to the LaserWriter, you'll need to use an RS-232 interface, such as the Omnitronix Deluxe RS-232 interface. The Apple Macintosh, another exception, uses a special cable to hook up to a LaserWriter.

Most terminal software can be used to print PostScipt files. I have used **CBTerm** on the C64 and **UltraTerm** on the C128. Set the parameters for 1200 baud, 8 bit characters, no parity, and half duplex. To send a PostScript file to the laser printer, use a Text, or ASCII transfer, or load the PostScript file into the terminal's buffer and transmit the buffer. A common problem with Commodore terminal software is that it might try to convert the file from PETASCII to ASCII. PostScript files are already ASCII. Never select ASCII conversion when printing PostScript from a Commodore terminal program.

IBM and Apple computers also use terminal software to print PostScript files. The communications settings and process are the same as for the Commodore. Additionally, **SendPS** is a free application for the Macintosh specifically for printing PostScript files.

The Truly Fascinating Part

PostScript files can be edited to add special effects, special characters that can't be typed from the keyboard ➥like these arrows⇔, or things that **geoPublish** can't do, such as rotate text. If you caught this column last time, you already know that PostScript fonts have almost twice as many characters as can be typed from the keyboard. The only way to get them into a GEOS document is by editing the PostScript output.

PostScript's versatility comes at a high cost. A PostScript file for this entire article would be unbearably tedious to write from scratch. It makes good sense to do as much work as possible with **geoPublish**, generate a PostScript file, then edit the PostScript file to add special effects.

Being faced for the first time with PostScript files on a Commodore disk, I was at a real loss as how to edit them. PostScript files can get enormous; 20 to 40K is common. A PostScript file editor for the 64 would have to edit a) true ASCII files, and b) any size file, even larger than can fit in memory. It would also be an advantage if people could easily get copies of this program so they could try out the exercises in these articles. I agonized about this until I realized I already had an editor that fit the bill.

geoWrite is *almost* a perfect PostScript file editor. **geoWrite** can edit large files by swapping pages to disk. I estimate that at 3.5K per page, **geoWrite** can handle files larger than 200K. I sincerely hope you never have a file that big. The problem with **geoWrite** is that it can't directly read ASCII files.

The solution is *Storm System's* **Wrong Is Write**. Use this amazing little utility to convert your PostScript files to **geoWrite**, then use it again to convert them back to ASCII. Public domain versions of **Wrong Is Write** are available on telecommunications networks and BBSs. *Storm Systems* will soon release a version 8.0 that will run with GEOS 128 V2.0 in 80 columns.

So, that's the new good news. PostScript is now a completely natural part of GEOS. PostScript files can be created directly with **geoLaser/Publaser**, converted with **Wrong Is Write**, and edited with **geoWrite**. The forces of the universe are now in harmony. What more could we want?

I enjoy your mail. If you have any questions or comments, please write.

Randy Winchester
P.O. Box 1074
Cambridge, MA 02142

Introducing..

GEOS Font Collection 1

Spruce up your GEOS documents with over 30 superb fonts, and create & edit others with the powerful GEOS Font Editor 2.4!

The Fonts:

* most fonts in at least 3 point sizes, over 100 different font-size combinations total!
* some examples:

Thames 24, Liffey 16, Merrimack 12, Patapsco 18, **Raritan 18**, Juniata 18, Hudson 14, Pascagoula 25, Osage 24, **Yellowstone 18**

* and many more!!!

The Font Editor:

- supports point sizes up to 48 points
- all the frills you'd expect from a font editor - stash & retrieve buffer, scrolling, horizontal & vertical flipping, photo scrap support, and more!
- has a built-in font scaler (developed by Bruce Gilson) - makes multiple point sizes a breeze - create one point size, and scale it to the other sizes!
- Font Grabber - converts BASIC 8tm, FontMaster IItm, or standard Commodore fonts to GEOS format - your old collection is useless no more!
- Previewing - print the complete character set, right from the editor! Print in Plain Text, Bold, Italic, Outline, or Reverse without ever loading geoWrite!
- versatile save options - by using "fake" point sizes (what you see in the menus in geoWrite), combine up to 7 different fonts into one file - helps to get around the 7 font limit in geoWrite!
- other niceties such as a Font ID editor and full cursor key support while editing!
- runs under GEOS64 and GEOS128 - in 40 and 80 columns!! (80 columns on 128 only)
- and more!!!

All this for only $21.50, which includes shipping/handling! Send check or money order (U.S. funds only) to:

Comm-Plex Software
6782 Junction Road
Pavilion, New York 14525-9755

NY residents please add appropriate sales tax. Make checks payable to Jim Collette.
Please specify "GEOS Font Collection 1" disk.

Fonts by Bruce Gilson, Font Editor 2.4 by Jim Collette.
GEOS Font Collection 1 disk is Copyright (C) 1988 by Bruce Gilson and Jim Collette.

Inside Geos

A programmer's eye view into the world of Geos

By William Coleman

Over the course of the last year or so I have been doing my best to teach Geos programming. Together we have covered the various options available and ways to improve upon them. Along the way I have provided many different subroutines to ease your programming burden as much as possible.

Beginning this month I am going to present the next phase of our journey inside Geos -- a complete Geos application. To be specific Convert V2.5. The code is not trivial and is rather long so it will take several months to get through the whole thing. Certain subroutines that I have already covered (such as DiskError) will not be covered again. I'll let you know where they are used as we go along.

A Converted File

Before we get started on the actual code let me explain a bit about what the program does. Convert (in all of it's various versions) is used to convert a Geos file into a Commodore file so that you can upload it to a bulletin board or telecom service.

There basically two things that need to be done: first the header block must be attached to the main body and the directory entry cleared. Second if the file is VLIR then all the records must also be attached to the index sector. A converted file has the following format:

Block 1 - A new sector containing the old directory entry, Convert's ID string, and other misc. system info.
Block 2 - The file's Header Block
Block 3 - If a SEQ file this is where the main body of the file will start. If a VLIR file this will be the Index Sector. All of the records will be

Listing 1

```
.if (0)
*******************************************************
Convert V2.4
Author:        William C. Coleman
Start Date:    7 November 1988
Notice:        Copyright (C) 1988, William C. Coleman
*******************************************************
.endif

.if  Pass1
     .noeqin
     .noglbl
     .include     geosSym
     .include     geos128Sym
     .include     geosMac
     .eqin
     .glbl
.endif

ENTSIZE        = $1e     ;size of a directory entry
HLOFFS         = $13     ;offset to header link
STOFFS         = $15     ;offset to structure byte
SOFFS          = $1c     ;offset to size word
BUFSIZE        = 17*255  ;size of buffer which holds filenames

               .ramsect

temp:          .block 2  ;various uses
doneCount:     .block 1  ;counter for files selcted
boot_Drive:    .block 1  ;drive Convert was booted from
work_Drive:    .block 1  ;current drive
comType:       .block 1  ;Commodore filetype to make file
blkcount:      .block 1  ;counter for record blocks in VLIR's
bytcount:      .block 1  ;holds # of bytes in last sector
offset:        .block 1  ;current offset into directory entry
flag:          .block 1  ;type of operation flag
dellnk:        .block 2  ;file link in directory entry
deoffs:        .block 2  ;offset in dir sector to file entry
chedlink:      .block 2  ;holds header block link
deBuf:         .block ENTSIZE  ;holds a copy of the dir entry
workBuf:       .block 256      ;utility sector buffer
nameBuf:       .block BUFSIZE  ;holds the list of filenames

               .psect
```

Inside Geos

Listing 2

```
Convert:
    ;Main entry point for Converter
        jsr     MouseUp
        jsr     FixFor128       ;patch doubling bits
        jsr     InitDRVVars     ;find out about drives available
        MoveB   screencolors,Cold1 ;initialize color RAM
        jsr     i_FillRam
         .word  1000,COLOR_MATRIX
Cold1:   .byte  0
        LoadW   RecoverVector,FastRecover
Convert1:
    ;this is the warm start entry point
        lda     #$ff            ;get names of all files
        jsr     GetFilenames
        sty     CVTFill+1       ;# of entries
        LoadW   r0,CvtDB
        jsr     SetDiskText     ;set 'drive A, B, C' text
        jsr     DoDlgBox        ;put up main box
        lda     r0L
        cmp     #CANCEL
        bne     10$
        jmp     Exit            ;if cancel - back to deskTop
10$:    cmp     #DRIVE
        bne     20$
        jsr     SwapDrive       ;change drives
        jmp     Convert1
20$:    cmp     #DISK
        bne     30$
        jsr     SwitchDisk      ;change disks
        jmp     Convert1
30$:    cmp     #INFO
        bne     40$
        LoadW   r0,INFO_Box     ;do info box
        bra     45$
40$:    cmp     #HELP           ;do help box
        bne     50$
        LoadW   r0,HelpBox
45$:    jsr     DoDlgBox
        jmp     Convert1
50$:    lda     selected        ;nothing selected - loop
        beq     Convert1
        ldy     #1
        sty     doneCount       ;counts files processed
60$:    jsr     ConvertOne      ;(un)convert a file
        txa
        bne     Convert1        ;there was a disk error
        inc     doneCount
        ldy     doneCount
        cpy     selected        ;all files processed?
        bcc     60$             ;nope, do another
        beq     60$             ;nope, do another
        bge     Convert1        ;all done
```

attached after this starting with record #0. The track and sector link in the Index sector is converted to a block count and last sector byte count. If the record is empty, i.e. $00/$FF it will be left alone.

Of course deconverting a file is simply doing the reverse, pulling everything apart.

Because the Geos specific directory entry info is lost an exact copy of the original is stored in the first sector. This sector is added to the file during conversion. It also contains the ID string which is used to tell Convert that this is a converted file and not just a plain old Commodore file.

The first three bytes of the ID string will be either 'PRG' or 'SEQ' depending on the filetype of the converted file. BSw's Convert programs check these bytes and will not convert the file if they don't match. My version ignores them completely (I start checking the ID string at the fourth byte). After all Geos could care less about the C= filetype, it will be changed when the original directory entry is restored. If Geos doesn't care about them then why should Convert?

There is some other info in the convert sector such as the version of Geos, the current printer driver, etc. As far as I can tell these bytes are ignored by all versions of Convert. I included them in my Convert's only for compatibility reasons.

The Source

Now that we have an idea of what's going to happen let's take a look at the source code. This month we're going to look at the upper level routines. In the next few months we'll cover the lower level code. The complete source for Convert is in three files: *cvt-cvt, cvt-tab,* and *cvt-box* . The conversion routines are in cvt-cvt so we'll start with that. cvt-tab contains tables and cvt-box contains the listbox routines.

Inside Geos

We'll be covering them later. This version has quite a number a features not in the oringinal Convert. The most notable is my new Multi-File box which allows you to select several files at once.

Listing 1 contains the equates and variables we'll need. I'm not going to cover them all, the listing contains comments to get you started. When they are encountered in the code I'll explain them in more depth.

Let's move on to Listing 2. This is thetopmost level. When first loaded *Convert* will be called to do the required initialization. This routine is only entered here just once, after that the warmstart routine *Convert1* will be called.

Convert1 is quite simple, the comments say it all. One thing I will point out here is that unlike my original listbox, the multi-select box returns the number of entries selected in *select* , the actual entry numbers are stored in select+1 to select+n.

One last point: just after the drive variables are set color memory is filled with *screencolors*.This is a good for all of your applications but remember it will only effect the 40 column screen on the 128.

Listing 3 contains the code to convert a single file. ConvertOne is called once for each file selected. Again the routine is rather simple, all I will say is that FindAddress returns a pointer to the selected filename and GetIt is used to decide if the file is a Geos file, a converted file, or a regular Commodore file.

Some 128 Stuff

The next few routines require a bit more explaination.They are used to provide Geos 128 compatibility. The first routine is called *FixFor128.* Take a look at Listing 4.

All Geos 128 graphic routines will automatically double the position and/or size of a graphic if the highest bit of the position or width word is set. Unfortunatly Geos 64 will crash if it

Listing 3

```
ConvertOne:     ; Pass: X - offset into selectBuf
        jsr     FindAddress     ;get address of filename
        ldy     #0
        lda     (r0),y
        beq     10$             ;null filename - abort
        MoveB   r0H,r5H         ;r5=r0 also push on stack
        pha
        MoveB   r0L,r5L
        pha
        LoadW   r0,EnsureDB     ;put up 'are u sure?' box
        jsr     DoDlgBox
        lda     r0L
        tay
        PopW    r6              ;now r6 holds filename address
        cpy     #NO
        beq     10$             ;user not sure - exit
        cpy     #CANCEL
        beq     20$             ;user not sure - set cancel & exit
        jsr     GetIt           ;decide what kind of file
        ldy     flag
        lda     lowTable,y
        ldx     hiTable,y
        jsr     CallRoutine     ;call appropriate routine for file
10$:    ldx     #0
        rts
20$:    ldx     #$ff
        rts
```

Listing 4

```
FixFor128:      ;Patches doubling bits
        jsr     CheckMode
        bpl     20$
        lda     #BYTEPATCHES*2
10$:    pha
        tay
        MoveB   "fixBTab,y",r0L
        MoveB   "fixBTab+1,y",r0H
        ldy     #0
        lda     (r0),y
        ora     #DOUBLE_B
        sta     (r0),y
        pla
        sub     #2
        bpl     10$
                ;if you need to change anything else do it here
20$:    rts

fixBTab:        ;add entries as needed
        .word   patchB,patchB2,patchB3,patchB4+1,etc

BYTEPATCHES     = ((*-fixBTab)/2)-1
```

Inside Geos

encounters a word with this bit set so it it necessary to set this bit manually. Since Convert won't change modes during execution setting the bits needs to be done only once. FixFor128 will set the high bit of all of the bytes pointed to in fixBtab. Note that these pointers are to a byte not a word so you must remember to use labels like patch+1 in the table.

The number of bytes in the table is computed by the assembler.Note the use of the * psuedo-op. Since only relative positions are being used the formula will work as advertised. Do not try this if one of the labels is in another file.

Now that we know how to change the bytes all that is necessary is to plug in the labels in the right places. You'll see the labels in various places as we cover the lower level routines.

There is an easier way to change the doubling bits when using i_BitmapUp. Listing 5 contains a routine called *i_Bmap* .Use this routine in place of i_BitmapUp. It will automatically set the doubling bits if the system is in 80 column mode.You could write a version of this routine to work in place of BitmapUp. Convert however doesn't need it.

Listing 5

```
i_Bmap128:      ;mode smart form of i_BitmapUp
        jsr     CheckMode
        bpl     10$             ;not 80 column - exit
        PopW    returnAddress   ;find the table
        PushW   returnAddress
        ldy     #3              ;fix position
        lda     (returnAddress),y
        ora     #DOUBLE_B
        sta     (returnAddress),y
        ldy     #5              ;fix width
        lda     (returnAddress),y
        ora     #DOUBLE_B
        sta     (returnAddress),y
10$:    jmp     i_BitmapUp      ;now back to normal

CheckMode:      ; return: minus flag set if 128 80 column
        lda     #$12
        cmp     version
        bpl     10$             ;V1.2 or less = C64
        lda     c128Flag
        bpl     10$             ;running on a C64
        lda     graphMode       ;must be 128 - check mode
10$:    rts
```

One thing I haven't discussed yet is how these routines know what mode the computer is in. *CheckMode* does the job for us. It uses three variables - version ($C00F), c128Flag ($C013), and graphMode ($3F).

c128Flag indicates what computer is being run. Bit 7 set indicates a C128. Geos V1.2 and below doesn't have this variable so we must check the version first.

graphMode is defined in 128 Geos only. If the high bit is set then the computer is in 80 column mode.

CheckMode is quite simple - BMI will branch after calling it if then computer is in 80 column mode. If you only need to know the computer, i.e. 128 or 64 simply check c128Flag.

The last routine we'll look at this month is the *Exit* routine. Convert maintains a variable called boot_Drive which holds the device number that Convert was booted from (InitDRVVars sets it when it sets work_Drive). Convert always returns to the same drive when the user exits.

Listing 6

```
Exit:   lda     numDrives
        cmp     #3
        bne     10$
        dec     numDrives
10$:    lda     boot_Drive
        jsr     SetDevice
        jmp     EnterDeskTop
```

That's all I have room for this month.Next time we'll look at the Geos to Commodore routines.

I have put together a brand new disk of subroutines containing the complete source for Convert plus several other goodies I've came up with.To order a copy simply send a check or money order for $10.95 to:

William Coleman
BlasterPak II
1431 Pacetti Rd
Green Cove Spgs, FL 32043

As always if you have any problems, questions or suggestions about Geos, feel free to leave me EMail on Genie (my address is WC.COLEMAN) or drop me a line to the above address. Happy 'puting.

the GEOS Report

A LOOK AT GEOS FILE STRUCTURES

Part 4 of a special comprehensive report on the GEOS Environment

By Mike Ross

Fifty percent of the GEOS kernal is occupied with disk handling routines. Before looking at them, it is important to take a look at how GEOS differs in file structure and disk directory information. An overview of standard Commodore DOS was detailed at the beginning of this report.

The GEOS file system is based upon the standard DOS. Two factors led to the design of GEOS's unique structures. The 64 was not originally intended to be a disk computer as the DOS resides in the drive. Secondly, disk turbo routines make it practical to read and write to parts of a file as needed. Under the old, slow DOS, an entire file would have to be read into RAM at the beginning of execution, then written back at the end. GEOS gets around this with block read and writes.

There are basically two kinds of GEOS file types. The *GEOS Sequential* file type uses an expanded definition incorporating 64 DOS user, program, and sequential files. This file type is simply a chain of sectors on a disk, linked by the first two bytes with track and sector pointers. The null pointer is 00h at the first byte of a sector, terminating the link. The second byte after the null points to the last valid byte in the sector.

More interesting is the second GEOS file type, the exclusive *Variable Length Index Record (VLIR)* which will be discussed in some depth.

Both file types contain an extra block of data known as the *Header Block*. The information in this block holds the icon data and extra GEOS information that can be viewed from the *info* box (previously discussed).

The disk directory header contains the standard DOS disk name and a two byte ID number. GEOS does not change the *Block Availibility Map (BAM)* which is contained on sector 0 of the directory track. However, GEOS does add new information in this header. These elements are a GEOS ID string, a track/sector pointer to the *Off Page Directory Block* (another GEOS invention), and a disk protection block.

The GEOS ID string uses an unused portion of the block containing the BAM/Header block. This identifies the disk as a GEOS type and the version number (for data compatability of future versions).

In describing the DESKTOP, I mentioned dragging icons off the notepad onto the border for file manipulation. The Off Page Directory Block is capable of holding up to 8 file entries. When an icon is dragged to the border, the file is erased from the main directory block and put into the Off page Directory Block.

The disk protection byte is normally set to zero, but can be set to "P" to identify it as a Master Disk. Remember this from the earlier discussion of special properties of the boot disk.

In the directory entry, previously unused bytes are used by GEOS:

Bytes 1 and 2 point to the first data block of a file, unless it is a VLIR file. These bytes are used by a VLIR file to point to the file's index table.

Bytes 3-18 contain the file name.

Bytes 19 and 29 point to the File Header block (the file's info data and icon).

Byte 21 is the GEOS File Structure Type -- 0 (Sequential) or 1 (VLIR).

Byte 22 are GEOS file types -- 0 (Not GEOS), 1 (BASIC), 2 (Assembly), 3 (Data), 4 (System), 5 (Desk Accessory), 6 (Application), 7(Application Data), 8 (Font), 9 (Printer), 10 (Input device), 11 (Disk device), 12 (System Boot), 13 (Temporary -- for Swap files).

Bytes 23 - 27 -- Contain Year/Month/Hour/Minute data (an exclusive GEOS feature)

Bytes 28 - 29 -- Number of blocks (sectors) in the file in Low byte/High byte.

Below is the GEOS File Header structure:

Bytes 0 - 1: 1st byte points to the next track and sector (If byte 0 is 00h, then we are looking at the null pointer, then byte 1 is an index to the last data byte in block)

Byte 2 - 3: Width if icon (always 3), followed by height (always 21).

Byte 4: Bit Map data type (to be explained). This value is set for the icon at 80h (the 2^7 is set high indicating the lower 7 bits contain the number of unique bytes to follow) + decimal 63 (see byte 5 - 67 below).

Bytes 5 - 67: Picture data (63 bytes, as mentioned) for the icon stored here.

Byte 68: 80h + C64 file type when saved under GEOS. Bit 6 sets electronic write protection. PRG = 1, SEQ = 2, USR = 3, REL = 4.

Byte 69: GEOS file type. See Byte 22 of Directory Entry. Same information goes here.

Byte 70: GEOS structure type -- 0 (Sequential) or 1 (VLIR)

Bytes 71 - 72: *FileStart* -- Starting address in memory for loading the program

Bytes 73 - 74: *FileEnd* -- Ending address in memory.

Bytes 75 - 76: *InitProg* -- Address of initialization routine to call after loading the program.

Bytes 77 - 96: *Permanent Filename* -- 20 byte ASCII application filename. Bytes 0 - 11 contain the name, bytes 12 - 15 contain the version string, bytes 16 - 20 are padding blanks.

Bytes 97 - 116: *Parent Disk/Author Name* -- If a Data file, 20 byte ASCII filename of parent application's disk. If application program, holds the name of the software designer.

Bytes 117 - 136: *Parent Application* -- If Data file, 20 byte parent application filename. Structured same as *Filename.*

Bytes 137 - 159: *Application* -- 23 bytes for application use.

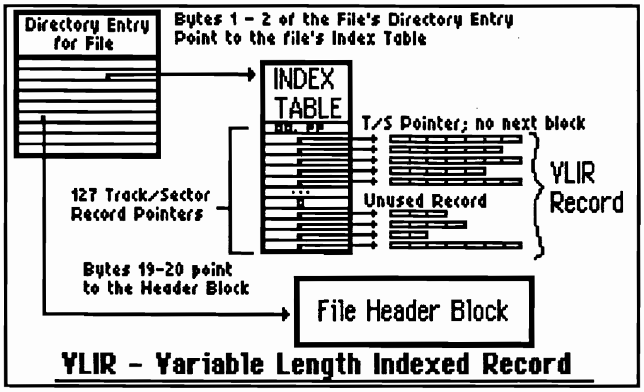
Bytes 160 - 255: *Get Info* -- must be terminated with a null. This is for the small "notes" box contained within the info box overlay. Data can be inputted here or changed by the user when *INFO* is called from the DESKTOP.

Some properties of interest here. *FileStart* and *FileEnd* in the Header block specify start and end of file. GEOS will compute the length of the file, before saving the file to disk to ensure that there is enough space on the disk. If a standard assembly or BASIC file is to be loaded, GEOS will check to see whether this program will disturb the kernal. If not, GEOS will use its Disk Turbo, or else it will use the slower C64 kernal/BASIC file loading routines. *InitProg* will be the start of execution after the file has been loaded. *Permanent Filename* is necessary so that a user can rename a file at will without disturbing an application's ability to determine a compatible data file (such as a geoPaint data file or geowrite data file). A Permanent Filename will look something like *"Write Image V2.0."* Version types are also compared. 2.0 versions cannot be read by 1.0 applications.

When a user double-clicks on a data file directly, GEOS will look for the application file via the *Parent Application* string. It is up to the application to compare version numbers.

VLIR files -- This GEOS file structure was created to allow an application of length over 30K to exceed the maximum space allotted by GEOS. Utilizing the kernal's Disk Turbo for a faster drive speed made module swapping of an application practical. To avoid thrashing or excessive disk loads, applications are designed so that one module is always memory resident, and sub-routines are the candidates to be swapped in and out. With a RAMDISK, this module swapping is usually transparent (a real blessing). Both applications and data can be stored in VLIR format.

Here is the VLIR structure: Bytes 1 and 2 of the Directory entry point to the track and sector of the file's *Index Table.* This array table can hold up to 127 track and sector record pointers. Each index in the array uses a linked list structure to point to the current record. The pointer can be set to look at the next or previous record. The current record is available to be written to, read from, or deleted. When a program is loaded, the Index Table loads into RAM at *fileTrScTab* (8300h). It is up to the application to determine whether a record can fit into available RAM for processing. Empty records are available for linked list manipulation (insert, et al). A record cannot be detached and re-attached elsewhere.


Directory Entry for File
Bytes 1 - 2 of the File's Directory Entry Point to the file's Index Table
INDEX TABLE
T/S Pointer; no next block
VLIR Record
127 Track/Sector Record Pointers
Unused Record
Bytes 19-20 point to the Header Block
File Header Block
VLIR - Variable Length Indexed Record

Now, lets look at the file formats of various applications:

GeoPaint files -- VLIR structured. Each branch of the VLIR tree contains 16 scanlines worth of picture. This data is stored in coded form that represent GEOS's bitmap compaction scheme. This scheme was first hinted at for the icon information in the header block. Coding of the image takes full advantage of patterns that are likely to exist in any image. Note: *MacPaint* also uses bit compaction, although it is quite another scheme.

The 16 scan lines of information are stored in the 8 x 8 pixel block that represents a card size. This would be the space a standard character would occupy on the low res screen. On the 8 x 8 block the first byte would be the 8 topmost horizontal bits. Then the 2nd byte of data would be directly below the first. This pattern repeats for eight lines. After the eighth, the next byte is positioned directly to the right of the previous topmost bit. This continues for eighty 8 x 8 cards (16 scanlines). The data is stored in a code byte followed by some data for the bit compaction scheme:

1) Code bytes less than 64 determine the number of individual bytes that follow (no compaction).

2) Code bytes ranging from 64 to 127 are used for the *fill* patterns. The least significant 6 bits determine how many character positions (8 byte blocks) are to be filled. This code is followed by eight which determine the fill pattern.

```
* * * * * * * * = FFh
* *   * *   * * = DDh   This 8 x 8 block, if it were to be
repeated 20 times would be encoded like this:
*   * *   * *   = B6h     0101 0100 (binary), FFh, DDh,
B6h, 5Bh, DDh, AAh,  55h, FFh
  *   * *   * * = 5Bh           (64 + 20)
* *   * *   * * = DDh
*   *   *   *   = AAh
  *   *   *   * = 55h
* * * * * * * * = FFh
```

3) A code byte ranging from 128 to 255 subtracts 128 from its value. This result becomes the number of times to repeat the data byte following.

This information is followed by bytes filled with color data. Color, as mentioned earlier occupies an 8 x 8 pixel card.

GeoWrite file format -- VLIR Structured. The first 64 records represent 64 pages of a file. The last 63 branches are pointers to Photo Scrap data. The first two bytes of data form a word holding the left margin's position in pixels. The next 2 bytes are the right margin. The 5th through 16th bytes are 6 words which are tab stop positions.

Text is stored in segments. The first bite is 17h (for text) or 10h (for graphic data). If 17h, then the next 2 bytes form the font ID (in coded form that includes point size). The fourth byte is a bit map for the style options. The attributes are as follows:

Bit 7 -- Underline
Bit 6 -- **Bold**
Bit 5 -- Reversed (not available for geoWrite)
Bit 4 -- *Italics*
Bit 3 -- Outline
Bit 2 -- superscript
Bit 1 -- subscript

The text string follows, terminated with 00h.

If the code byte is 10h representing a Photo Scrap, then four bytes follow without any image data. The second byte represented is the width in pixels, the 3rd and 4th are the height. The next represents a pointer to the VLIR record holding the data.

Photo Scrap file format -- Sequentially structured. The first byte is the number of bytes wide the image is (the number of pixels divided by 8). Photo Scraps are always even multiples of 8. The second Band third carry the height in pixels. Photo Scraps use another bit compaction scheme:

1) Code bytes less than 128 mean the following byte is repeated that many times.

2) Code bytes ranging from 128 to 219 mean that if 128 is subtracted from the code byte, the result is the number of data bytes to follow.

3) Code bytes ranging from 220 to 255 are special. First, subtract 219 from the code byte to get the count of bytes in the pattern that will follow. Following the code byte is a repetition count for the pattern.. Folowing this are the bytes that constitute the pattern and could include either of the first two code bytes.

Text Scrap file format -- Sequentially structured. The first 2 bytes are a word containing the number of bytes in the scrap. Text segments are in the same format as geoWrite files.

Photo/Text Album file format -- VLIR structured. Each record holds an individual Photo or Text scrap.

Font File format -- VLIR structured. The index of the table represents the point size of a font. Standard font files (I am not speaking of Megafonts) are limited to 48 points due to memory limitiations. Font files have unique ID numbers stored in their header block (bytes 128 and 129). At byte 130 there is a 32 byte table containing the Font ID for each character set (point size) available for the font. Byte 97 is the start of a Point Size Table containing the size of each character set. Since both of these tables are 32 bytes in length, each font is limited to 16 different point sizes. The formula that identifies the font and point size is ID# * 8 + point size.

Here is the font file record format for a given point size:

00h: Number of pixels - 1 above the underline (the line of print).

01 - 02h: Number of bytes in the bit stream

03h: Point size (height in pixels)

04 - 05h: Index from beginning of font to table of bit stream indices at 08h.

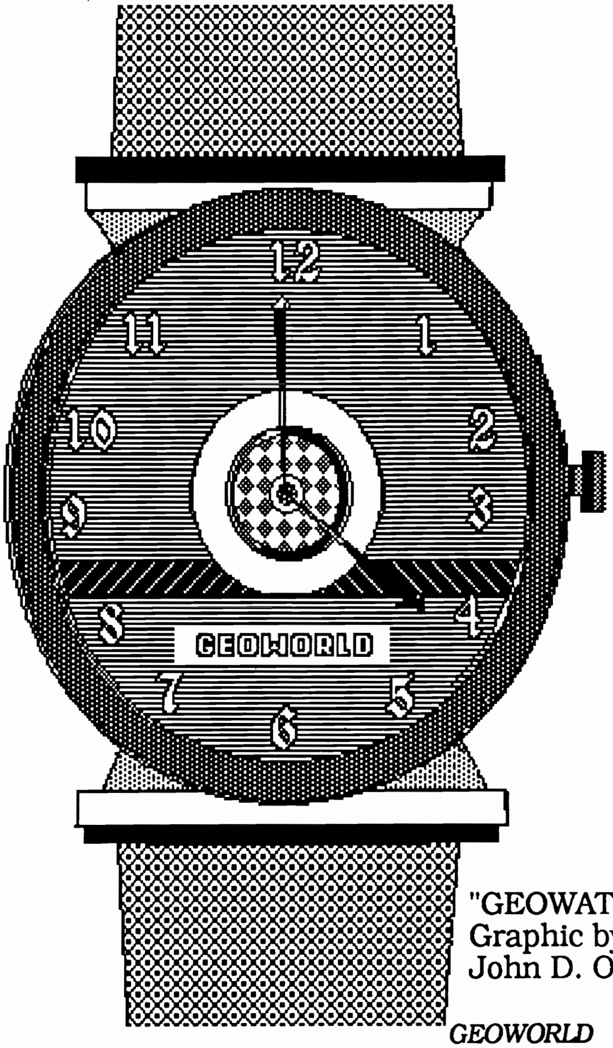
06 - 07h: Index from beginning of font to first bit stream.

08 - xxh: Table of words which are indices into the bit streams, one for each character from space (32h) to the tilda (126h)

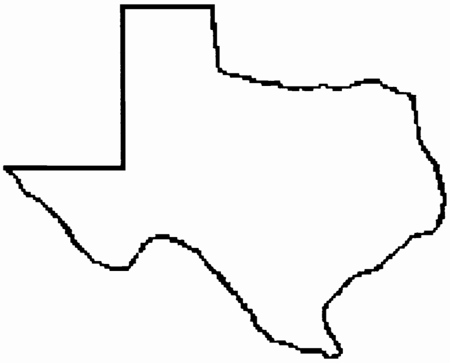
xx - xxh: Pointed at by 06 - 07h. The font is stored as several bit streams, one for each line of pixels. Point size = the number of bit streams. All character images are stored in the stream.

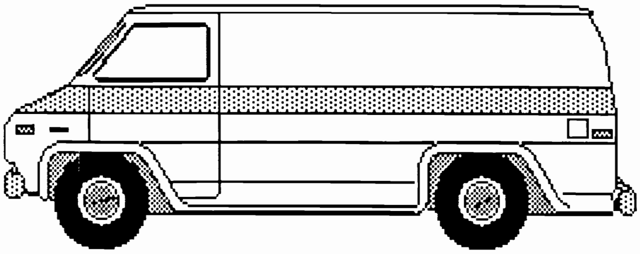
These file formats give an example of the methods GEOS uses to conserve storage and manage overlays. It hints at the work of the kernal. Next month this report closes with "The Work Of The Kernal".

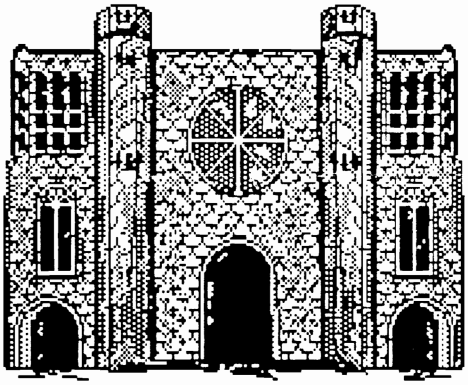
--Mike Ross

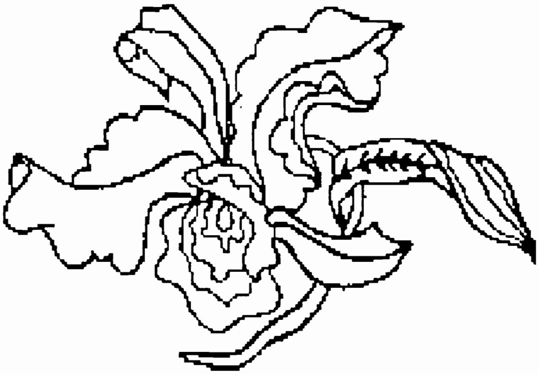


"GEOWATCH"
Graphic by
John D. Ottini









All 50 States, some Methods of Transportation, Buildings, Art for Children, Plant Life, Animals And more. In 7 Photo Albums. For GEOS 2.0* users.

$9.95 includes postage

TT grafix
326 Clothier Spring Road
R.D. #5
Malvern, PA 19355-9657

*Please specify if you DO NOT have 2.0

TT grafix
CLIP DISK ONE

A Guided Tour of the GEOS Arena on Q-Link

By Marshall Kragen (GeoRep MK)

Since becoming a GEOS customer representative on Quantum Link, I have discovered that many people do not realize exactly what the GEOS Arena has to offer, nor how to take advantage of its many features. I have hung around in the area nightly since its founding and was an original beta tester of the entire Q-Link system, so the arena is second nature to me now. But, I remember some bewildering times in the beginning, and I see people stumbling around the area now. Consequently, I wanted to give a guided tour of what is offered and how to get the most information with the least amount of plus time.

The purpose of the Arena, as far as Berkeley Softworks is concerned, is to provide the main means of customer support. Customer representatives, (including myself), none of whom are employees of BSW, but who are experienced users, are now available online for expert help. We are expected to answer, on a nightly basis, all questions asked and to alert BSW of possible program bugs or other problems called to our attention. It should be kept in mind that BSW expects to hear from the Reps and will promptly respond to questions we ask.

Therefore, if you have any problems or difficulties, the Reps are your best link to the company. The one exception is with software order problems. These are handled by the in-house customer service department, operating on Q-Link using the screen name, GEOS STEVE. If you have any problems along that line, send full details of the problem, including your real name, address, etc., by E-mail to GEOS STEVE, who checks his mail daily and replies.

Before discussing the specifics of the Arena, there are those who may be complete novices at using Q-Link. Therefore, I want to briefly explain the mechanics of the whole operation so you can take advantage of it.

When you first sign on, to find the GEOS Arena, you must select *Commodore Software Showcase* on the main menu screen. You will then see *GEOS Arena* and on selecting it, will move into that area. The F1 function key is used to select items.

When operating in Q-Link, the function keys and cursor keys control movement and selection. F3 allows you to save information printed in the data area after you type in a file name. This is handy for program descriptions as well as messages you might want to read or refer to later. The file is saved as a sequential file that can be read or printed with a file reader such as *Sprint*, on the Q-Link disk. Sequential files can also be converted to geoWrite files with Red Storm's *WrongisWrite*. Remember to insert a data disk before saving, since there is little space on the Q-Link program disk and you don't want to take a chance of corrupting it.

F5 cancels what you are doing, & back-tracks through menus. When you read replies to messages, you may have already read some but need to find more recent ones. Q-Link has no choice but to go through them in chronological order. If you hit F5 every time an old one comes up, it will move on to the next one instead of printing out each reply. This can be a tremendous saver of plus time and boring reading. If you can remember the last date you read replies, there is an option to start from that date. F7 calls up sets of menus for downloading, getting comments and messages or adding your own.

The Arena has many options available, but the two key ones are the *Customer Service Messages* and the *Software Libraries*. The main area of the arena is Customer Service, which allows the posting of messages by users on any topic. In this way there is a ready exchange of new ideas, problems, and even complaints about GEOS, Berkeley Softworks, or Q-Link. There are two main divisions, one for C64 and one for C128. Within the C64 division there are General Messages, Printer, GeoWrite, GeoPaint, and GeoWrite message boards and Follow-on Applications. When the latter is called up, you get more boards covering GeoFile, GeoCalc, GeoPublish, and GeoChart. The C128 duplicates the above except that the Follow-on Applications are GeoFile 128 and GeoCalc 128 only.

As to the specifics of these, you should post your messages wherever applicable to the specific computer on which you had a problem or have a suggestion since you will reach those with expertise or need in those areas. The general message boards include general problems such as those of the operating system and such matters as installing and booting system disks..

There is a GeoRep in charge of each of the sub-boards who has considerable expertise in those areas. For instance, I am primarily assigned to the C128 General board and both GeoPaint sub-boards. I can cross over and answer any questions on other boards for which I have expertise but have primary responsibility for those mentioned.

Because the Reps are limited to their areas of expertise (I know nothing about printers other than my own), it is important that you place your message on the appropriate board. In this way you will be assured of the right expert seeing it and replying. Also, others having similar problems or knowledge in that area can help you.

It is most important that the title of your message describe briefly but succinctly your problem. There are several reasons for this. Those scanning the boards (and paying plus time) need to quickly go to the right area. If you just title your problem "Help", no one else is helped. If you state instead "Disk Won't Install", then those with a similar problem can benefit from the answers given to your message.

Specific subject titles are also helpful with another Q-Link tool that may not be understood. When you first enter *customer service* to read messages, you are asked if you want to read all messages or are seeking a specific topic. Rather than peruse the whole board, you can have Q-Link search for your topic of interest. You are asked for a topic or subject and then type in the appropriate word or words. Q-Link's software will check the database of the board you are on for titles containing those words and display those messages. Therefore, by choosing the title "Okimate 120" all messages about that printer will be displayed. So, proper message titles will help everyone. Another reminder regarding message titles is to make the title short as to cover about 3/4ths of a line. At the end of the title will be "(R...)". After the "R" is a number. This is a way of telling if there are any replies and if so how many. This letter and number will print over your title so you should leave room for it. When scanning the board it will tell you if there are any responses and how many. As you read each response, there will be a "R" at the end of its title if another reply follows. As each message is fully displayed the gray status bar at the top will call for you to hit F1 for the next reply, whether or not one is present. I find that if nothing else I should read all those with several "Rs" noted since these have generated a lot of interest.

Remember that while you are reading the messages, you can save any of them to disk with F3, so that a helpful answer will be available to you while actually working with GEOS to solve your problem. This is one of the ways that customer service on Q-Link is so much more helpful than calling BSW's telephone customer service lines. When you call them, you must take good notes to remember the details of the answer. On Q-Link the answer is written out.

Special messages to note on the boards are the Rep's *stopping points.* As they complete each day's answers and prepare to sign off, each Rep will post on his Board a stopping point noting the day. This is a place marker and the Rep ordinarily does not look below that point in checking messages. Therefore, if you have any follow-up to a previous message you will be wasting your time to post it below a stopping point. Instead, start a new follow-up message. As far as I am concerned, I would prefer the follow-up to include a brief summary of what was asked below since I frequently forget what message was about what, with so many of them appearing in a week's time.

A final important point is the use of language on the boards. neither Q-Link, nor Berkeley Softworks, will tolerate the use of improper language in messages. It must be remembered that Q-Link is a family oriented service and can't allow curse words on its boards. Your point can be gotten across quite well without such language. Besides, as soon as profanity is seen on the boards, a message will be sent to Q-Link to delete your message in its entirety. Criticism will be tolerated as long as it is not slanderous or offensive.

The Software Libraries provide an opportunity for users to upload and download a wide variety of public domain software. The library is divided into several different areas, consisting of: BSW Applications, User Applications, Input & Printer Drivers, geoPaint Graphics, geoWrite files, and Fonts. BSW applications are the only ones not purely public domain consisting of patches for bugs, demos, upgrades, fonts, and printer drivers written by the BSW staff.

The User Applications consist of programs such as utilities, desk accessories, games, application data files or anything written or created by a user and released to the public. A lot of people looking at this vast library may become confused by its listings. First, the files are listed in reverse chronological order according to the date they were made active. They can be checked either by listing them one after the other or by a listing that shows each by name and author.

Once you have a file listed, there may be considerable information about it. The author should have explained just what the file is and the system it will work with. Frequently, the librarian will add comments, especially if he considers the file a noteworthy one. Also given is the estimated download time for both 300 baud and 1200 baud modems. The amount of time it will take to download should always be considered to determine if the software will be worth the value.

There are other considerations to help you decide to download. If you look at the title, you'll see the same "R" system I described before. This tells you if there are any messages concerning the software stored with it. These are comments by those who have used the software as to its merits. I strongly suggest that these be read. Only then can you be sure that the software really does what it is touted to do and if it even works. To get to the comments (or to download), hit F7. For some reason there is a quirk to this message system that many do not understand. Q-Link gives you only the first message. To get the next one you have to hit F7 followed by F1. This is continued until all are read.

Once you are satisfied that you have the software you want, insert a data disk and choose "download file". Once the database locates the file, it is transmitted to your drive. A status line at the top of the screen keeps track of the amount that has been transmitted. Don't touch the disk until the status line informs you the download is complete.

Perhaps the most confusing point for novices after downloading is how to get the software to work. What must be understood is that before a GEOS file can be uploaded to Q-Link it must be taken out of GEOS format and changed into a sequential file, due to peculiarities of the GEOS file system, making the ordinary GEOS file unreadable on upload. Therefore the reverse must be done before you can use it. To change it you need to use a program called *Convert* which exists in many forms, some provided by BSW and some by independent programmers. There are versions of "Convert" on GEOWORLD Disks #1 and #4.

Get one of the versions and it will take you through the steps to convert any files on the disk. If you downloaded your version of *Convert* from Q-Link, it has to be converted first before it can be used. A version called *Convert 1.0* (for C-64 users) will self-convert when double clicked. It will, in turn, convert other versions. For C-128 users you need a version called *Convert 128*, which is also self- converting and available by sending E-mail to GEOS STEVE. If you have a version of GEOS 128 older than 2.0 it is on your Q-Link disk.

There are a couple of other sources of software you might want to look into. There is a separate section called "Contest Winners" in the GEOS Arena. Included are winners of the Compute's Gazette/BSW programming contest. They are some of the best programs available, providing everything from games to font creators to custom printer drivers. Winning entries in the *RUN* Magazine/BSW desktop publishing contest are more complex and taking longer to appear.

Another GEOS software source is the Graphics library of *Commodore Software Showcase*. This area is found by going to Commodore Software Showcase/Software Libraries/C-64 Graphics. (This annotation is a common one used on Q-Link to show the menu path to follow to reach an area.) Once there, you will find a section on fonts, (which includes GEOS fonts), utilities, (which provides programs to convert graphics of other formats to GEOS), and MacPaint files, which is art created on a MacIntosh computer and converted to GEOS format.

If you should want to upload a file you must first convert it to a sequential file, using *Convert* again. Also, you should set the title up so that it reads normally when listing a directory outside of GEOS. This way, Q-Link can find it on your disk to upload. It's best to type an all-caps title from the GEOS DeskTop.

If you know the precise name of a file you want, as well as the screen name of the uploader, you can obtain that file through the Commodore Software Showcase/ C-64 Software/ Download a Specific File. The catch is that you must have the file name exactly right as well as the uploader's screen name or Q-Link's database will not find it. Q-Link publishes guides listing program and author names that are available through *The Mall*.

There are other areas of the GEOS Arena which should be quickly noted. The Programming Area provides technical help (presently without input from BSW), on writing programs for GEOS. There is a beginner's area which tells you what I am doing here but in a much briefer format.

The News section provides the latest information from BSW about their products, as well as GEOS related companies such as GEOWORLD Magazine. LaserDirect prints GEOS documents via laser printer and you can upload your files to them on Q-Link. You can also order GEOS products directly from BSW (although they are usually cheaper elsewhere).

The final important area is the Post Office. This gives an opportunity to communicate privately with other GEOS users. As far as BSW is concerned, mail should not be sent to GeoReps concerning BSW matters. We are not allowed by the company to provide substantive answers to such inquiries for two reasons. First of all, since E-Mail is private, no others will benefit from the answer. Secondly, there is no way for BSW to verify that their independent reps are appropriately answering the questions that are asked. Therefore, you are wasting your time to send us questions, since we will only send you immediately to the boards to re-post your question. E-Mail can be sent to GEOS Steve, but this is limited to only inquiries about lost orders from BSW, as described above.

I hope that this guide will give you a better insight into how to take advantage of the GEOS Arena. I cannot urge you enough to do so since its use will allow you to both answer your problems and find new ideas on how to better take advantage of GEOS.

--Marshall Kragen

More On MegaFonts

Since our last issue came out, new help for making MegaFonts is available. A new little program by John P. Dalbec will create the necessary 54 point file for your font, after you've created the 48, 49, 50, 51,52 and 53 point files.

MegaFont Fix supplies the 54 point "garbage file". It is actually a summary file that is convenient for calling GetRealSize on characters that are in different point sizes, without having to load in each of those point sizes in turn.

This program has been uploaded to Q-Link, and will be included on GEOWORLD Disk #5, available with issue #22.

As we go to press, I just got a peek at Jim Collette's new Font Editor 2.5 He has added so many new features, it is truly fantastic. This big (33K) program is a full-featured application that every font designer will enjoy using.

One major upgrade regards the editing and creating of the MegaFonts. Jim has made the process so easy, that last issue's article is already outdated. Besides being able to load and edit existing MegaFonts, it is an easy procedure to make a MegaFont out of a large font of several files. The feature that makes it so easy is the *font "stealer"* that quickly grabs characters from another font. I can combine two or three font files in minutes instead of the hours it was taking me.

Watch for more on this new editor next issue. Available from: Jim Collette

Comm-Plex Software
6782 Junction Road
Pavilion, NY 14525-9755

Hardware Tip

Install a Reset Switch on your C-64 for use with GEOS and a Ram Expansion Unit

By Jean F. Major

If you can manage a little bit of soldering, this hardware tip can improve your efficiency when using GEOS and possibly save you hours of work.

By installing a reset switch on your Commodore 64, and keeping the GEOS DeskTop on your RAM disk, you can crash your system, reset it, LOAD"RBOOT",8,1 and be back to work in less than 30 seconds without losing any DATA that was stored on the REU.

Note: If you can't use a soldering gun, have it done by someone who knows how to do it, it's worth it..

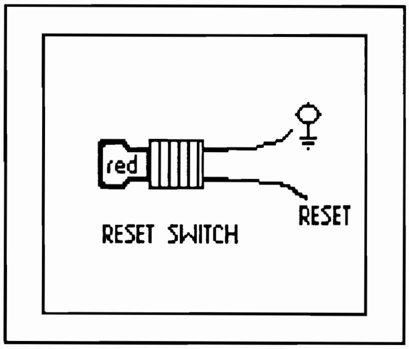
Installing a reset switch:

Equipment:

You will need: a reset switch (small and red is preferable), two wires of about four inches long, a soldering gun & a small drill. (most of these items are available from Radio Shack)

Where:

The best place to put the switch is on the bottom case, so you won't have to unplug the wires every time you open your computer. (I installed mine on the bottom case, on the left side close to the back).



I drilled a hole the size of the switch and glued it in place with 5 minute epoxy, leaving only the red button outside.

Final stage:

You will have to attach one wire to the ground (the bus bar on the left) and the other wire to the reset of the user port (the third, on the top from the right; being in front of the computer). These places are well-explained and shown in the *Commodore 64 Programmer's Reference Guide*, (in the user port section, and in the plans at the end of the manual).

Caution: Don't install this switch if your computer is still under warranty.

One more thing: Berkeley recommends that you put the DeskTop on every work disk, but it works fine if you only have a copy on the REU, leaving 30K of space on your work disks. The REU must be active all the time. This was tested with two 1541s and a 1764 REU on both GEOS V1.3 and GEOS 2.0).

--Jean F. Major

Multiple Copies with geoWrite

A solution By Stephen Haffly

In GEOWORLD #19, a letter was published with the request that a "multiple copies" feature be added to the geoWrite print dialog box. I have found a solution to this problem. It does not add a multiple copy feature to the dialog box, but it will allow multiple copies to be printed. The solution is to use geoMerge and is quite simple.

First, write your document. Second, make up a Merge Data File. This file is not really going to merge anything into your document, but is the key part of this process. Follow the procedure as outlined in your geoMerge manual or on page 216 of the GEOS 2.0 manual. The Label record will have only one entry. This can be a word such as "blank" or "dummy" or any other word. The Data record will consist of numbers separated by asterisks. The numbers are convenient to help keep track of how many copies you will be making. It will wind up looking something like this:

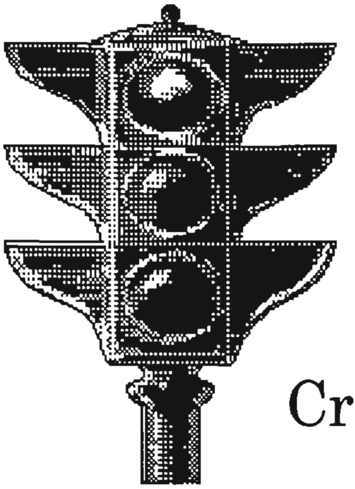
Label record:
dummy
*(followed by a carriage return)
Page Break (inserted by program, or you can do it yourself)
Data record:
1
*****
2
*****
3
*****
4
*****

(note: last entry must be followed by an asterisk and a return.)

Finally, open geoMerge. When the dialog box prompts to choose the form document, select your doc- ument. Then answer "yes" to the dialog box for using a data file for merge information. Select your dummy merge data file. Select your print options and the docu- ment will be printed out in as many copies as you have numbers in your dummy merge data file.

I have been using this method now for some time. I keep a dummy merge data file available on a disk pre-set for 50 copies. If I do not need so many copies, I just open the file with geoWrite, highlight and cut the extra numbers. This may not be the most elegant solution, but it is free for those who have geoWrite Workshop or GEOS 2.0.

--Stephen L. Haffly



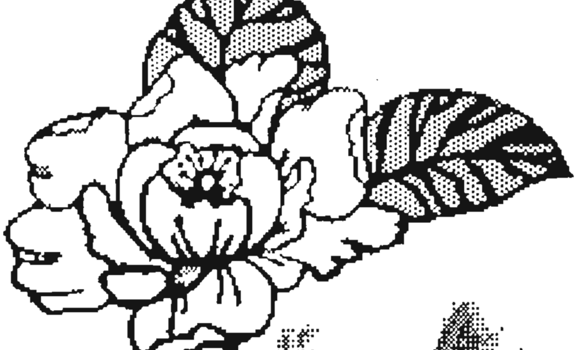
ANNOUNCEMENT

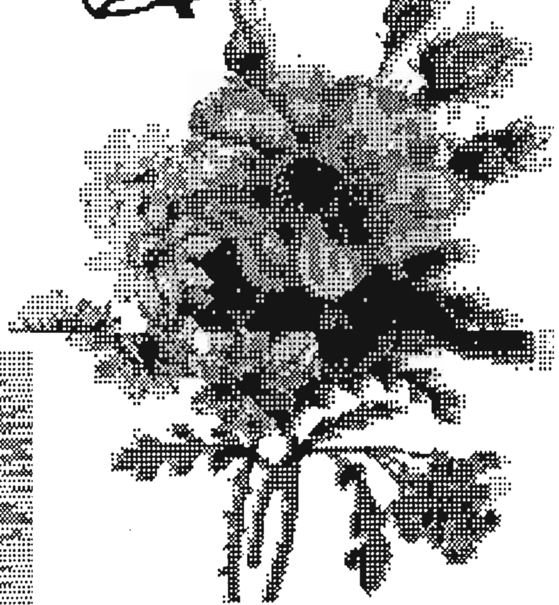
Lamb Art & Design Now Has 5 More Disks!

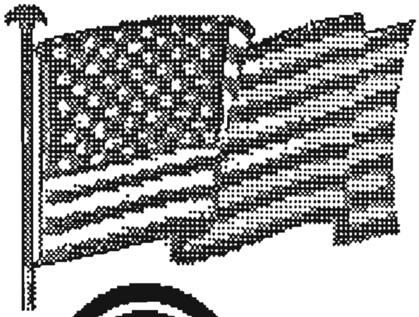
Creative Graphics, Fonts & Ideas in GEOS Format. High Quality at a Low Price.

Volume 4 -
FLYER STARTERS
Special full page graphics and megaFonts for quick and easy flyers with geoPublish.

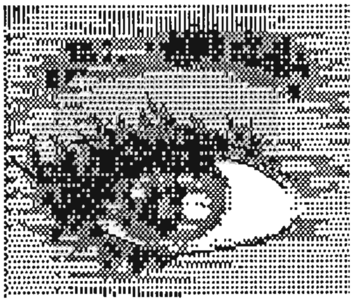
Volume 5 - CARD MAKER
Special graphics and fonts designed for cards and stationery. GeoPaint and geoPublish templates in stock sizes makes creating professional-looking cards easy. This disk includes files of my cards and stationery which won 3rd place (open category) in the BSW desktop publishing contest..







Volume 6 - CATEGORY CLIPS ONE
This volume contains albums of clips in specific categories. Holidays, Religion, Seasons, Pointers, Sports, Ethnic, Tools and Food. More category clip disks will be released soon.



HUNDREDS OF BIG, BOLD GRAPHICS IN A VARIETY OF STYLES

HERE'S
A
BRIGHT
IDEA!

Volume 7 - FONTS TWO - ALL SIZES
Many great fonts in many sizes. If you like my fonts on the RUN Magazine disk, here's more.

Volume 8 - OBJECT-ORIENTED CLIP ART
As seen in geoWorld and on GW Disk 3. Use with a laser printer for a smooth look or as regular clip art with a dot matrix printer

STILL AVAILABLE:
Volume 1- GRAPHIC ELEMENTS
Volume 2 - FULL PAGE BORDERS
Volume 3 - FONTS ONE - HEADLINE FONTS

GRAPHIC IDEA FILES
ALL DISKS - $10.00 EACH.

Send check or money order to:
LAMB ART & DESIGN
3575 EAST CO. 18TH STREET
YUMA, AZ 85364

Put these ***geoDisk II*** *icons to work for you!*

Can't open ?

Disk Repair
A fix for sick disks

Safety first!

Disk Guard
Keeps GEOS disks safe

Clowning around . . .

bigTop 128
Just for fun!

Which fonts did he use?

Font Finder
For geoWrite documents

Now you can easily cut and paste icons.

Icons -> Album
Saves icons in
a Photo Album

4X Icons
Save expanded (this size)
icons in a Photo Album

Oops!

TrashPicker
Find lost treasures
in the wastebasket

Get your disks in order.

geoInfo
Prints a directory with
all GEOS information

geoDisk II is now available. A 15 page laser printed manual includes a comprehensive list of available GEOS fonts. **geoDisk II** is only $12.95. Also available: **Randy's geoDisk**, featuring **SEQ->Text Scrap V2.0**, the ultimate text conversion tool. **Randy's geoDisk** is only $15. Get both **geoDisks** for $22.50 and save.

Overseas orders please include $3 for shipping. To order, send check or money orders to:

Antigrav Toolkit
P.O.Box 1074, Cambridge, MA 02142

Turning the GEOS world on it's side!

BACK ISSUES

Issue Number 1-5 sold out
Issue Number 6-20 $2.50 each postpaid

Send check or money order to:

GEOWORLD
38 Santa Ynez St.
Santa Barbara, CA 93103

12 Issues - $20.00
Canada $30.00 - Overseas Airmail $50.00
US funds
send check or Money order to:
GEOWORLD
38 Santa Ynez St.
Santa Barbara, CA 93103

Subscribe to GEOWORLD!

☐ New Subscription

☐ Renewal

____
Name

____
Address

____
City, State, Zip Code